STRATEGIC BUSINESS PLANS FOR THREE AGRICULTURAL COOPERATIVES IN BURKINA FASO

KAREL CASTELEYN
EDUARD DE BRUYNE
FIEN EECKHOUT

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VLERICK PROMOTER : PROF DR ROBIN KLEER

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EXECUTIVE SUMMARY

In the north-western region of Africa, Burkina Faso is a developing country that has been plagued by recent terrorist attacks and the inevitable impact of Covid-19 (Eizenga, 2019). Despite these hard circumstances, different cooperatives have been founded to help communities and make sure that the food supply stays stable. Three of these cooperatives are UGPOS (*Union des Groupements Producteurs d'Oignon du Sanmatenga*), UPPRS (*Union Provincial des Producteurs de Riz de Sanmatenga*) and UERWL (*Union des Etuveuses de Riz Wend-waoga de Louda*), all three functioning in the province of Sanmatenga. Thanks to the help of the Belgian non-profit organisation Trias, several achievements have been accomplished together with the cooperatives in the past years (Trias, 2020). Next to this, with this work commissioned by Trias in order to help the three cooperatives, it is the goal to help the organisations forward and to strive towards more financial and social security within the communities.

Regarding the outlay of this document, three different business plans for the three different organisations have been integrated. It is thus completely possible to read and interpret the business plans independently from each other as for each cooperative, the best approach to handle their specific challenges has been worked out.

For the UGPOS organisation, the scope of the business plan is to establish a sound marketing plan to sell more onions from its members. By analysing the market in Burkina Faso and making use of acquired marketing knowledge, a framework was incorporated in which both the strategic part as well as the operational part of a potential marketing plan is discussed. In short, it would help UGPOS drive forward if a branding strategy is applied based on the supreme quality of their onions and on the perfect service delivery. Action steps are thus creating this brand and improving the after-sales service by contacting clients and making sure they enjoy an optimal buying experience. By delivering excellent quality and service, a competitive advantage in the niche market of quality onions can be created and will attract more customers in the mid-term.

The second organisation, UPPRS, has as a goal to establish a business plan to verify the cost-effective use of the acquired rice huller model SB-30. On top of the improvements in the production of quality rice and the reducing of post-harvest losses, the acquisition of the rice huller seemed a logical next step. However, the cost-effectiveness of this equipment was never analysed in-depth before the purchase. As our investigation shows that the SB-30 model is one of the most efficient rice hulling machines on the market and as the processed white rice can be sold with a considerable mark-up compared to unprocessed paddy rice, it is recommended to use the rice huller as much as possible. Therefore, a key action step to undertake is to try and

commit new buyers for fixed contracts of white rice instead of paddy rice. Relying on the existing network of clients and focusing on expanding this network is therefore crucial.

The scope of the project for UERWL is to develop a business plan in which production costs and profit margins are better understood. As currently, the cooperative has signed contracts and delivered large quantities to rice buyers, it is still a loss-making organisation. This contradiction must be investigated and while doing so, other problems such as the setting up of a periodic parboiling scheme and the endless loop of trying to get funding for every purchase of paddy rice, were discovered. Therefore, by identifying the most urgent core problems in the unprofitable organisation of UERWL, specific action plans were made to deal with these different problems. The introduction of cost pools to get an overview of all costs (including an Excel tool) and a branding strategy similar to the one of UGPOS are advised.

Above all, a recurrent remark in this work is the advice to try and keep as much as possible track of the relevant data that you need to build further on to get insights. From the number of processed tons per hour through the rice hulling machine to the monthly sales of rice/onions to what clients exactly and so on. Every detailed information that is relevant for the business should be stored so that in the future, these insights from the data can be used to come up with more optimal solutions for the specific challenges of the cooperatives.

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Introduction

TRIAS

Trias is a non-governmental organisation with headquarters in Brussels but operating worldwide to develop countries in poverty and to improve the situation of their inhabitants. The organisation specially focusses on entrepreneurs as the driving force of local economies and incomes of people. Trias operates by creating partnerships with local organisations and by supporting them financially and strategically. Consequently, Trias is involved in a wide network of organisations worldwide.

In Burkina Faso, Trias supports several agricultural organisations, as 80% of the population is depending on agriculture (Trias, 2020). However, local farmers in Burkina Faso struggle with drought, desertification on the one hand, and flawed infrastructure and the low level of education of the citizens on the other hand. The mission of Trias in the country is to help local farmers to improve income or generate extra income through the cultivation of rice and onions.

Global Social Project

With this project report, we intend to help three partner organisations of Trias that are located in the Sanmatenga province of Burkina Faso. The relevance of this quest for improved processes and operations is extremely significant as Burkina Faso has been forced to fight terrorism and criminal trafficking groups the last years which caused instability in the country (CIA, 2020). On top of the recurring drought and limited natural resources, the economic prospects are weakened. Therefore, the provided support to these three farmer-oriented corporations is fundamental and has the ability to truly make a difference. In what follows, we will shortly introduce the three specific partner organisations.

A first organisation is UGPOS (*Union des Groupements des Producteurs d'Oignon du Sanmatenga*). The organisation represents her members, onion farmers in the province of Sanmatenga, in the north of Burkina Faso. The organisation represents 216 onion producers who have 46.5 hectares planted area (UPCPO/SNM, 2020). The mission of the organisation is to improve the living conditions of her members and to develop the onion production in the region. It helps their members, among other things, to develop their technical and financial capacity, it supports the commercialisation of their onions and it does negotiations with the government.

A second organisation is UPPRS (*Union Provincial des Producteurs de Riz de Sanmatenga*). The goal of the organisation is to promote the development of rice cultivation but also the

improvement of the socio-economic conditions of its members (Lompo, 2017). Founded in 2014, the organisation now includes 6,400 members divided in 66 groups of rice producers. The union is seen as a strong pillar of the rice value chain in the area and has contributed significantly to the advocacy that has resulted in institutional rice markets and the inclusion of young people and women in the new rice growing sites. Being assisted by TRIAS for several years, which has enabled it to strengthen organisational capacities and agricultural yields, UPPRS is aiming to analyse in-depth the cost-effective use of newly acquired equipment. We will contribute to this analysis by investigating and showing the exact value to production of this machinery.

A third organisation is UERWL (*Union des Etuveuses de Riz Wend-waoda de Louda*), a rice processing cooperative. It promotes local rice and the professionalisation of parboiling (*steaming*). It is intended to be a tool for strengthening relations between the parboilers and the different links in the rice sector. The union was founded in 2014 and has since been in partnership with Trias. The 120 women steamers in the cooperative have seen their technical capacity in Louda strengthened. They were also able to establish business relationships for the supply of paddy rice and the sale of parboiled rice. A new service centre was built and equipped, providing permanent jobs to women. UERWL has gained visibility in its area of activity and increased their sales volume. Still, they struggle to control their periodic parboiling capacities. Moreover, production costs and profit margins are not properly understood. In 2019, the cooperative signed contracts and delivered large quantities of rice to buyers, but an internal audit revealed that the cooperative managed the markets at a loss. We will provide them with a business plan not only focused on the paddy rice parboiling but also on the profitability of the cooperative in general.

The goal of this project is thus to develop a business plan adapted to each cooperative, i.e. on the marketing of onions for UGPOS, on the operation of a new rice huller for UPPRS and on the paddy rice parboiling for UERWL. The report is structured accordingly, so for each organisation you can find a clear problem statement, background analysis, methodology and finally the results and discussion of the research, completed by an action plan for the future.

UGPOS

1. Introduction

UGPOS is an organisation set into place to improve collaboration between its members that are onion producing farmers in Sanmatenga, a province in Burkina Faso. The organisation buys and sells the onions of its members (Drabo et al.,2020).

The sales from UGPOS are mainly in the form of group sales. There are two ways how UGPOS organises the group sales. The first way is by collection at the premises of the producers and then packaging it according to the desires of the buyer. The second way is happening directly at the centre of storage at the UGPOS premises, where onions are directly available to be sold. However, not all onions of the members are being sold by means of group sales organised by UGPOS. Some producers also sell onions individually, without the intervention of UGPOS. This complicates the sales and price setting for UGPOS, because the members decide the prices for the individual sales themselves.

Nowadays, the marketing efforts of UGPOS mainly exist of being present with a stand on fairs. In addition to the fairs, UGPOS makes advertising gadgets that they offer to their partners and clients, such as the traders, brokers and restaurants. They also set up a Facebook page in the hope to boost the visibility and to attract more contacts. In recent years, a small business travel is made to a neighbouring country, Togo, to build new business relationships and to discover and potentially exploit international markets.

2. External background analysis

2.1 Onion Market

Onion production – In 2019, Burkina Faso had an estimated production capacity of 400,000 tons annually. Therefore, the country is currently ranked as the third largest onion producer in the West-African region behind Nigeria and Niger (Agri Digitale, 2019). The production capacity increases fast, as it was just over 300,000 tons in 2015. This means an increase of almost 33% over the last 4 years. In that year, the onion production was about 32% of the total vegetable production and 3% of the total agricultural production in the Burkina Faso. Back then, the onion sector covered 11,000 hectares and employed 15,000 producers (UkrAgroConsult, 2015). It can be assumed that these numbers increased as well, in proportion with the production capacity increase**.** Nowadays, onions have become one of the main agricultural products on which

farmers have real hopes for the improvement of their incomes and to fight food insecurity. It is mentioned that the farmers also get the support of the State to realize this (UPCPO/SNM, 2020).

Import and export of onions - A part of the onions produced in Burkina Faso are exported to Ghana and Côte d'Ivoire (GBN, 2012 and DIA, 2014). However, the domestic production of onions struggles to meet the regional demands. Thus, there is still a dependence on the external import of onions during the off-season, the top import origin of onions in Burkina Faso are the Netherlands (97% of total imports) (Intracen, 2013 and EPA Monitoring, 2020). Moreover, the excess production of onions in Niger, a country which produces around 7 times the amount of onions produced in Burkina Faso, are also being sold in Burkina Faso. These operations led to a shattering of the onion price in the past, but it still influences prices today (Oudet, 2012). Therefore, the first priority should be to serve the national demand completely independent from international trades. Especially in troubled times, like with Covid-19 pandemic when the borders are closed due to emergency, it is important to be self-sufficient as a country.

Competing with imported onions – The imported onions of Niger create a challenge for the farmers of Burkina Faso. However, the domestic onions can compete with the Niger ones in terms of quality and taste (Oudet, 2012). It appears that Burkina onions have more flavour, are mostly preferred by customers and cooks of restaurants. Moreover, less onions are needed to flavour a dish. The fact that the domestic onions and the imported Niger onions are sometimes mixed up before being sold and packed together, does complicate the competition. As you can clearly distinguish domestic onions from others, being smaller and brighter red, quality labels mentioning the producing country can provide a solution (Oudet, 2012).

Seasonality – The production of onions is seasonal, but Burkina Faso has a rainy season onion variety that allows farmers to cultivate three times in a year. This is an advantage over the production in other neighbouring countries, such as Ghana, which has a more limited production season (DIA, 2014). In Burkina Faso, small grants provided to Burkina farmers allowed these farmers to invest in storage facilities. An appropriate storage infrastructure enables farmers to store harvests over a longer period of time and avoid spoilage. This allows farmers to earn more money depending on market fluctuations (World Bank, 2017). For example, "Just after the March 2016 harvest, a 50-kilogram sack of onions brought in barely 4,000 CFAF while the same bag could be sold for 22,500 CFAF in October" (World bank, 2017).

2.2 Marketing and Trade Relations in Africa

Introduction - As the onion market in Burkina Faso deals with both internal and external sources of onion production, it is important to establish a good understanding of how the marketing

process is dealt with in Burkina Faso and its surrounding countries. Therefore, in what follows, the marketing of onions and its most important key success factor, the establishment of solid and reliable trade relations, will be discussed based on the existing literature.

Import - According to the International Trade Centre (2013), the countries of the Economic Community of the West African States (ECOWAS), with Burkina Faso as a zone B member state, have been facing difficulties over the years. The post-harvest losses, high seasonality and other production-side constraints have led to an inability to meet the domestic demand. As a result, the community is dependent on the external imports during off-season months. As already mentioned before, these imported onions are mostly coming from neighbouring countries such as Niger and Morocco or European countries (Karg & Drechsel, 2018 and Intracen, 2013). This means that regional onion producers and unions such as UGPOS not only have to deal with regional competition but also with strong (inter)national competition.

Creation of unions - Therefore, the creation of unions serves as a response in order to join forces to compete with the imported onions and capture a higher proportion of the regional demand. This is also argued by the International Trade Centre to be a solution for facing this competition. The integration of smaller markets into a larger regional economy could lower the transaction costs and they will become attractive markets for foreign investors. It is these increased trade facilitations such as harmonized standards and custom procedures that are argued to be strengthened by the creation of the ECOWAS free trade area and that can lead to better marketing opportunities (Intracen, 2013).

Challenges - Despite this awareness and the formation of the ECOWAS free trade areas, there is stated that the intra-regional trade in the ECOWAS area is low, poorly documented and very informal (Torres & Van Peters, 2016). Nonetheless, it is believed to have a considerable potential to increase as different actors would benefit from promoting this intra-regional trade. West Africa houses 1/3$_{rd}$ of the continent's population and it is therefore crucial that an efficient and good working trading system is provided in order to solve and anticipate food distribution problems. Before such a system can be developed, some difficulties have to be faced. As trading is most of the times handled as an informal process in western Africa, there is limited knowledge about the direction and the magnitude of trading flows (Torres & Van Peters, 2016). This absence of data and misreporting urges the countries to bring a more strategic focus to the marketing and trading in the ECOWAS area.

Informal trade - As most trading takes place in an informal way, it should be investigated what the key success factors are and how this way of trading can lead to a better marketing of the

products. It should also be questioned if this informal way of trading will still last for a long time but as is argued by the International Trade Centre, this instalment of trade facilitations is hard and will take time. Therefore, there will mainly be focused on how we can exploit these informal relationships by delivering the best possible service.

Fragmented and small scale businesses - As Africa's food markets are described as the most vibrant ones in the world, it is an open market place that is left to the control of millions of small businessmen and woman instead of large corporations and government agencies (Trading Up, 2008). Therefore, markets are fragmented and small-scale businesses and trades take place on a continuous basis. With the absence of formal processes such as standardization, contract enforcement and decent market information, a mindset of relying on themselves instead of relying on a whole set of formal market institutions has to be adopted. On top of this, the volatility of the market and its tough market conditions are challenging and urge for a better integration of markets. Although it is in these markets that social networks and longstanding interpersonal relationships prove to be fundamental and help to reduce the risks and costs of trading (Trading Up, 2008).

Cash and carry transactions - This informal way of trading is also referred to as the *cash-and-carry* transaction in which the buyer meets the seller personally and inspection of the goods is done before the payment in cash is arranged. The only paperwork is often the transaction of the money which proves that personal relationships play a fundamental role in marketing the product (Trading Up, 2008). By relying on mutual loyalty and a set of unwritten norms and values, it makes sense that the successfulness of building and maintaining good trade relationships is dependent on similarities and common interests.

Conclusion - To conclude, the integration of markets to provide a solid competitive framework and the building of successful relationships with trading partners is essential to make sure that a union such as UGPOS can thrive. It should be said that on this first aspect, i.e. the ECOWAS free trade area and its efficient working and controlling by government bodies, UGPOS can have little influence and should try to strive for a more regional integration of markets. Whereas on the second aspect, i.e. the interpersonal relationships with traders, UGPOS can commit itself by networking more and more and by taking into account the importance of social fundamentals and an optimal service delivery in order to create friendships and reliable partnerships.

3. Research Methodology

In this Research Methodology section, the current problems of UGPOS will be discussed. Moreover, there will be explained how these problems will be addressed by deriving detailed

research questions. By using this approach, the way of acquiring information and data will be discussed as well as limitations that were stumbled upon while trying to solve these urgent matters for the organisation of UGPOS.

3.1 Problem formulation

In order to derive a sufficient question hierarchy on how to solve the current issues of UGPOS, first the actual problem must be understood. As UGPOS is a cooperative that brings together individual farmers to make sure that big orders can be supplied, the organisation owns 120 warehouses and is distributed over 8 departments (UPCPO/SNM, 2020). In the latest years, there have been considerable improvements in the production capacities of the onion farmers. Next to this, also the storage infrastructures and the quality of the onions have been improved. The improvement of quality is realized by meeting the technical production standards imposed by the government and by the collaboration with INERAN to supply quality seeds to the farmers. Also, the quality is monitored by seed monitoring managers. All these initiatives point out that there should be a possibility to cash in the benefits of this potential competitive advantage. However, in the region, there is a differentiation in types of buyers. Some buyers are not interested in buying more expensive quality onions while others do have an interest. It is now the goal of UGPOS to reach, in the most effective way, the potential interested buyers in the market of quality onions both regionally and internationally.

The quality of the onions that are produced by UGPOS members is not fully recognized and has to compete with the cheaper onions produced by farmers in the region. In this regard, not only regional competition should be dealt with as also the imported onions are sometimes sold for a cheaper price. The goal of introducing a set of detailed research questions is thus to tackle this marketing challenge of acquiring more sales for the cooperative of UGPOS. The questions and subsequent recommendations will therefore deal with the aspects of the commercialisation of onions, the best practices in the African trading environment and acquired knowledge based on the background analysis.

3.2 Identification of the question hierarchy

To address the earlier mentioned challenges of selling the quality onions produced by UGPOS members, detailed questions should be answered in order to arrive at appropriate solutions for the UGPOS case. The main question that is the ultimate objective of conducting this research is: *How can UGPOS generate more incoming revenues by better marketeering the produced onions of its members in Sanmatenga, Burkina Faso and surrounding countries?* Because it is a spike in incoming revenues that is eventually desired to make the cooperative profitable and to allow

the community and the UGPOS members to thrive. In this case, the means to obtain the goal is a better way of marketing the quality onions.

In order to be better informed on the best practices of marketeering onions in Burkina Faso, detailed subquestions have been defined. These questions guided our way of thinking towards the right direction:

Background analysis questions:

- What specific factors have influenced the successfulness of UGPOS' marketing approach of selling onions so far? What challenges is the onion market in Burkina Faso facing?
- What are the best practices in trading onions in Burkina Faso and its surrounding countries? How do other cooperatives deal with this? Who are the actors involved in the industry
- Next to the regional markets, what are the options on the national and international markets?
- What are the trends and technologies (f. ex. breakthrough of internet usage) that are likely to evolve in the coming years in Burkina Faso and will have an impact on the marketing of onions?

Research questions:

- How can UGPOS ensure long lasting partnerships with existing clients? In which way can UGPOS convince existing B2B clients to purchase larger orders?
- How can UGPOS start new relationships with potential buyers more efficiently?
- How can UGPOS market their onions in an effective way?
- What marketing strategy is the most effective for the UGPOS case?

3.3 Research Design & Data Collection

To tackle the earlier mentioned challenges and raised questions concerning the optimal way of promoting the quality onions of UGPOS into the market, both primary and secondary information sources are used.

In order to gain insights in the regular working process of the UGPOS cooperative, an introductory Skype call was organised with René MILLIMOUNO and Emmanuel ZOMBRE, two Trias representatives, through which we obtained several general documents. With the knowledge from the Annual Report 2019 (Drabo, 2020) and the Operational Plan 2020-2021

(UPCPO/SNM, 2020), a general framework of the working processes and the organisation's way of thinking was acquired. However, to acquire more insight in the specific working of marketing onions in Burkina Faso and the Sanmatenga region, more detailed information had to be gathered. For this gathering of information, there was opted for a strategy in which written communication played a fundamental role. Due to the language barrier and the bad connection that was experienced in the first introductory call, the decision was made to focus on written communication as this is the most efficient and clear way to fully understand and be able to translate the answers given to our questions.

Thanks to the introductory call with Mr. MILLIMOUNO and Mr. ZOMBRE, a contact with Korotimi DRABO, a local representative of UGPOS, was set up. Through the sending of detailed questionnaires, information from this primary local source was acquired that gave us more direct insights in the UGPOS organisation. However, a remark should be made that some information was contradictory to earlier mentioned data which made the judgment of certain situations hard. This may be due to translation issues, making a deep understanding of the situations more difficult. The questionnaires were composed of questions that are dealing with understanding the general working of the organisation or dealing with the specific challenges and current practices of marketeering onions. They are the result of a brainstorm and a thorough thinking process on which information should be obtained to solve a marketing problem.

Regarding secondary information sources, different internet sources such as the International Trade Centre, the Worldbank and the Agridigital webpages were used to gain more background information. Next to this, also research papers and academic sources were consulted to form a general framework and good understanding of the onion market and best practices in Burkina Faso and surrounding countries. Furthermore, also (online) books such as Trading Up were examined to strengthen the awareness and comprehension of UGPOS' challenges.

Based on these primary and secondary sources of information, a general understanding of UGPOS' challenges was created on which we based ourselves to brainstorm towards a feasible solution for the organisation. In this brainstorm session, not only these sources led to a foundation for a reliable solution, also the knowledge acquired through the Vlerick year (based on several marketing challenges such as the Neuhaus Deep Dive Challenge and the KBC Marketing Challenge) was reviewed and selected upon usefulness. In particular, the marketing sessions of Frank Goedertier were thoroughly investigated and used as a framework to work towards an understandable and well-organised solution that consists of two levels of thinking: the high level strategic marketing section and the more practical operational marketing section. In correspondence with the marketing book *Principles of Marketing* by Philip Kotler, the

methodological framework was created which made sure all relevant aspects for the right marketing of quality onions in Burkina Faso were reviewed and included in this marketing plan. Therefore, we want to inform the reader that the next *Results and Discussion* section should be read as a business plan section rather than a thesis or dissertation section.

To conclude, it should be stated that in an ideal scenario more information on the needs and expectations of the B2B customers, i.e. the intermediaries that buy from UGPOS and sell to restaurants, hotels and other traders, would be available. As this was not the case, a survey will be attached that ideally will be filled in by all clients to measure the satisfaction and an action plan on what to do with the answers that are given. As the creation of such a survey and the receiving of sufficient answers was not feasible in the given time span, this is an aspect that could be worked on in the mid to long term future.

4. Results & Discussion

4.1 Strategic marketing

4.1.1 Product differentiation & positioning

Competition - Selling onions in Burkina Faso or in the West-African region is a competitive business with fierce competition. In Burkina Faso, there is competition from other onion farmers and organisations from Burkina Faso, but the biggest competition in the local market appears to be the imported onions of Niger and Nigeria.

Differentiation - The imported onions are often being sold at a very low price and are sometimes even being mixed with local onions before being sold on the market or exported to other countries. Our research shows that the onions of Burkina Faso are different from the imported onions. The domestic onions do have a better taste and less onions are needed to flavour dishes. Fortunately, it is also possible to differentiate the domestic onions from the imported onions by the way they look, as they are smaller and brighter red. This visual differentiation should be put emphasis on during presentations at fairs and in negotiations with potential new clients as it is a clear characteristic of the locally produced quality onions.

4.1.2 Value proposition

Importance of a value proposition - The customer value proposition can make a significant contribution to business strategy and performance; guiding on where to allocate limited resources in initiatives that will generate the greatest incremental value for the organisation and its customers.

High quality - Given the information mentioned above about the more premium quality of the onions and its sustainable production process, it is advisable to market the UGPOS onions as the best quality onions (i.e. as the product leader). Combined with the fierce competition of the imported onions available on the market for a very low price, it is recommended for UGPOS to extend the differentiation. It should position itself as the product leader and focus the marketing strategy on showing that they have the best onions. More specifically, there should be focused on the facts that UGPOS is providing the best quality onions, the better taste, the more sustainable production process and the service rather than trying to compete with the lowest price on the market.

Strong brand - It would be advisable to create a strong and recognizable brand for the UGPOS onions. This will make the onions stand out and make it clear that the customer can expect quality when buying this brand. In addition, a returning colour linked to the brand also improves the recognisability of the brand. Moreover, a brand is important because it should serve as a quality label that drives purchase decisions of customers. In the operational marketing section, the importance of a strong brand and how to achieve this will be further deepened.

Favourable point of differences – To conclude the proposed value proposition of UGPOS, it should formulate the value proposition as the reason to purchase the organisations' onions instead of the onions of a competitors or imported onions. This is called the favourable point of differences (Anderson, 2006). Quality, taste and the organic production process is what stands out. There should be focus on the fact that these onions are healthier thanks to the non-usage of pesticides during production. Also, the local production and thus improvement of the life standards in the country is an important aspect to stress. For intermediaries and other B2B clients, these might be considered as important advantages as they want to maintain a strong reputation in delivering quality food to hotels and restaurants. Next to this, you need less onions to flavour your dish because of the better taste of these onions. Therefore, money will be saved.

4.1.3 Customer segmentation

Customer segmentation - The interviews with UGPOS show that the organisation sells 90% of their onions to intermediaries, only 10% is sold directly to the end consumer. This has as a consequence that they have a smaller number of clients, but that these clients buy, as intermediary, larger amounts of onions. For example, in 2019, the 3 biggest clients together bought 90 tons of onions at an average price of 19,000 FCFA for a bag of 100 kg onions. They sell at 17,500 FCFA per bag to the biggest client who bought 36 tons in 2019, and at 20,000 FCFA per bag at the second and third largest clients, who bought respectively 30 and 24 tons

that year. That confirms that UGPOS provides the larger customers with better prices, a sort of bulk discount.

The intermediaries sell the onions afterwards to international traders, wholesalers or restaurants. Selling to intermediaries has advantages. UGPOS can easily sell a large amount of onions and they can create long-standing relations with them and provide extra service as they have less clients. In addition, if UGPOS wants to improve international sales, intermediaries of neighbouring countries have the knowledge of the local markets, so this is an accessible way to penetrate other markets. On the other hand, there are opportunities linked to selling directly to the end consumers. Most importantly, you can create bigger margins when selling without an intermediary. In addition, there is the advantage of proximity. You get to understand the end consumers and their needs better.

Covid-19 - With regards to the Covid-19 pandemic, international sales will be uncertain in the coming months. However, as the onions of UGPOS should be marketed as product leaders, with high quality onions, it is important to target the quality seeking customer, even if this are international buyers.

Conclusion - To conclude, we advise to focus mainly on selling to intermediaries. Being able to sell large amounts of onions at once to a smaller number of clients provides you with the opportunity of building strong client relations. You can target both national and international intermediaries but with different operational strategies which will be explained later. This means that the marketing plan is based on Business to Business (B2B) marketing, as intermediaries are not the end consumer. As mentioned, the focus should thus be on the quality-seeking customers.

4.1.4 Customer Relationship Management (CRM)

Identify customers - Customers are an important asset that deliver value for the organisation, so it is important to develop customer relationship management capabilities and maintain relationships with profitable customers. Therefore, UGPOS should be able to identify these customers and reinforce the buyer-seller relationship. Making a database of profitable customers and their contact details is a valuable source of information for marketing.

Reactive CRM - The first reason why a database of customers is important, is to manage the relation after a certain sale has happened. This is *reactive* and *responsible* CRM. Sending a satisfaction survey can help to understand the needs and wishes of an existing customer, so the organisation can improve their weaknesses in the future and discover their unique strengths which is useful for potential marketing campaigns. Calling the customer to ask if the onions and

provided service fulfils their expectations is also value-adding. It gives a sign to the customer that their opinion is valued and that you are working on providing them a better service in the future.

Proactive CRM - A second reason for the importance of the database is to act *proactively.* Existing customers can be contacted to organise a periodical routine rebuy. This is anticipated sales. The main advice is to call customers from time to time to promote recent onion harvest. Personal marketing is more effective and efficient as mass marketing (Kotler, 2009). You can target existing customers with their personal special needs and personalize the marketing strategy for specific customers. After all, the emerging affluent African consumer is as connected as the rest of the world and have smartphones, so this type of connection can be used for marketing purposes (Bhan, 2014).

Customer retention - A third reason is to ensure *customer retention*. Generally, it is cheaper to keep existing customers than constantly searching to attract new customers. There are two ways to support customer retention. The first one is by providing customers with *financial benefits.* Giving returning customers the opportunity to negotiate a better price for larger purchases should be considered. The second one is *social benefits.* As mentioned before, attributing customers with other benefits than purely financial, such as providing a more personal service based on the needs of the specific customer. A small extra that serves both data retention and branding is to send existing larger customers a yearly branded small thank you gift. It can also just be a post card wishing the customer a happy new year. It is by showing that you care about them and the quality that you delivered that they will stay a client.

Value chain – To be able to sell the onions of the highest quality, a description of quality standards should be given. A quality onion is on the one hand the onion that meets the technical production standards established by agricultural technical services such as choice of inputs, organic manufacturing, and on the other hand a production with respect for the environment and the requirements of the international market. Be able to tell this story extensively and convincingly to new potential clients and even to your existing clients. Know this marketing pitch by heart and be convincing while telling it, show buyers that you are not the same fertilizing using farmers as is the case for other farmers.

4.2 Operational marketing

In the strategic marketing section, the CORE of the UGPOS organisation was emphasized, i.e. the quality, taste and sustainable production of the onions that is offered. While in this operational marketing section, the smaller but nonetheless important and rather practical elements that give the organisation an extra advantage compared to other organisations will be described, namely

how can we offer MORE to our customers. In terms of levels of thinking, there is thus a descent from the high-top level of strategic thinking to the more operational aspects of the implementation of this high-level marketing plan. With the implementation of these MORE-oriented action plans, UGPOS will give their customers more than if these intermediaries would go directly to the individual farmers or other organisations to buy their onions.

4.2.1 Packaging

Currently, there is a labelling mechanism of the onions being used which addresses the name and address of the union, the variety of the onion, the weight and the year of production. The existing logo is also a great eyecatcher and can be used as a recognizable point for potential customers. This is a good start, however, to make a difference and to make sure that intermediaries and other parties recognize the UGPOS onions well, it is recommended to go a step further in this labelling process.

Figure 1 Logo of UGPOS, retreived from the Facebook page

As real quality onions are offered that meet the technical production standards and are produced respectfully towards the environment, it is suggested to make use of these value propositions. This could come in the form of installing a uniform packaging design for all the onions sold by the organisation. By for example introducing sharp green packaging for all the bags that contain onions, this will give a nature-minded and thus greener perception to the product. Not only intermediaries but also the restaurants and hotels to whom the onions are sold will immediately recognize that the onions are supplied by the UGPOS organisation of the Sanmatenga region which stands for good and environmentally friendly onions. On top of the earlier mentioned characteristics that the labels contain (name, variety, weight,…), a small text that mentions that the onions are produced by meeting the governmental standards established by the agricultural technical services could be included on the green bags to make buyers and consumers aware that the quality onions are free of chemical fertilizers.

The introduction of this uniform packaging will create awareness for the UGPOS brand and hopefully in the long term create the perception of quality onions compared to the Niger onion and other cheaper fewer quality onions. The option for the colour green for this packaging is widely perceived as healthy and fresh, plus it is present in the existing logo. Furthermore, this colour is also well known to the people of Burkina Faso as it is part of the national flag and has the symbolic meaning of hope and the richness of agricultural and natural vegetation (World Population Review, 2020). These symbolic meanings associated to the green colour of the

packaging can therefore more easily be used in slogans and headliners that are used on fairs and in the verbal and written contact messages with intermediaries.

1.2.2 How to communicate about the value propositions

Building further on the proposal of using green packaging, the establishment of a brand (as is applied in many western countries) gives the customers a recognizable and identifiable product to connect with. As intermediaries and consumers know that the UGPOS brand is associated with quality and clean production, the green bags of onions will be noticed and easily associated with the good characteristics that UGPOS offers. Therefore, it would be strongly recommended to not change the name of the organisation again in the near future as a brand builds on what people know. By changing the name, people get confused and will stop associating the right characteristics with the UGPOS products. Important to note is that the name that is used on social media, fairs, banners, flyers, warehouses and so on, should be the same name everywhere. The same counts for the logo, this should be used as an eyecatcher. Only in this way, a brand can be established and build upon towards the future. This recognizability is fed by the marketing rule of 7, stating that it takes an average of seven interactions with your brand before a purchase will take place (Hedger, 2019). This includes any interaction, meaning literally any mentioning of your brand, for example advertisements, banners, hearing someone mentioning the brand, seeing it online, etc. This can be very easily achieved. As we are focusing mainly on intermediaries as customers, we know where they are present or how to reach them. By making calls, having an email campaign, amplifying content in social channels as Facebook, advertising through pamflets, posters or other printed materials, or many other possibilities the level of visibility will increase. This will mean that the prospect customers are being more frequently exposed to your brand. Over a long time, the result will be an increase in brand searches, number of orders and an increase in sales.

Consequently, the use of the same name and the same visualizations is fundamental. In this regard, there is the choice of staying with the name UGPOS under the condition that the organisations' name does not change anymore. If the name is already well known in the region, it is certainly possible to stick to this name. However, UGPOS is an abbreviation and for most people doesn't capture the essence of what you are trying to deliver in terms of service and quality. Another possibility is to find a short name that captures this essence of quality and service as well as the fact that you are selling 'onions' in the region of Sanmatenga. As the creation of a good name in French is hard for us to define due to the language barrier, we see UGPOS more fit to come up with such a brand name. When choosing a new brand name, it is crucial that it will change the name just once now and afterwards keep this name. To conclude, it is essential that

all communications regarding the brand and the promotions should be done out of the name of the brand.

4.2.2 What sales channels to use?

In order to be able to install the brand in a good way, the brand will have to be made visible. This means that people should recognize the brand in as many places as possible. Linked to this visibility are the channels through which UGPOS onions are sold. As currently onions are sold for 70% through group sale by collection and for 20% through group sale at the storage centre, only physical sales channels are used. This makes sense as most of the contacts with intermediaries are rather informal and based on a good track record in the past. A potential way of keeping your customers in the information loop is sharing your own intel on how the production is going on these physical fairs or whenever you have physical contact with the customers. This can potentially also be done by calling or sending emails with updates on the production. By doing this before and during the harvesting season, people will feel more related and valued as they receive more insights. However, to be disruptive and to go beyond the contacts made on regional, national and international fairs, a digital sales channel is recommended to be installed.

As part of the omni-channel approach, meaning that you sell both through physical real-life contacts and through digital online contacts, the creation of a digital sales channel could facilitate the reaching of potential buyers outside the Sanmatenga region. This is fundamental to the UGPOS organisation as within the region the market is not very profitable as buyers look for cheaper alternatives. The expansion outside of the region is wanted, needed and will be simplified and speeded through the installation of online sales channels.

Recently, a Facebook page representing the UGPOS cooperative has been created. Although this is a passive action step, meaning that it is mostly used if customers want to get in contact with UGPOS rather than the other way around, it is a very good first step as you are always reachable also for potential buyers located further away from the organisation. On this Facebook page, flexibility is key as it will be used mostly to attract new customers. Therefore, it is recommended to post updates and promotions on the good quality of the onions on a regular basis. When a new contact is established through the Facebook page, a good method of winning good will in order to acquire a new wholesale customer is to offer on sending them a sample of the quality onions. In the short term, this will be a cost but when the customers can taste the product and experience the professionality and goodwill from UGPOS' side, they will be convinced more easily to become a client and generate incoming revenue streams in the long run.

In order to further evolve to active action steps, meaning that UGPOS themselves will try to get in contact with potential buyers, they should rely on the current network of existing wholesale clients. By staying in good contact with these clients and by treating them like 'friends/family' by checking in on them on a regular basis, the relationships will grow beyond the professional aspect and therefore can deliver you second tier contacts, meaning friends of your clients. In this way, an expansion in the network can be organised as your wholesale clients can introduce you to new acquaintances that are located further away. It is then not only via phone calls, but also via Facebook messenger and WhatsApp that a solid relationship can be build. Whenever a new potential customer is in contact with UGPOS, it would be recommended to offer on sending them a sample package in the uniform green packaging of the UGPOS brand to prove how good the product is and to converse them into real long-term customers.

4.2.3 Price

It is understandable that in informal markets, it is hard to install uniform prices. However, it is definitely recommended to keep informing each other (i.e. the UGPOS organisation and its individual members) on the evolution of the prices of the onions. Towards the future, it doesn't make any sense when a customer can go around and visit several individual farmers to be able to get his needed quantity at lower prices as the customer can negotiate with every farmer individually. Therefore, a uniform price setting is still advised if this is feasible. In an ideal scenario, the farmers could sell all their produced onions through the cooperative, so they don't have to sell individually. However, this seems not reasonable to assume in the near future as, first, the customer base of the cooperative needs to grow.

However, when the UGPOS brand is established and your value propositions clearly stand for quality onions that meet the technical production standards and that are produced in a respectful way towards the environment, it shouldn't be possible that the same branded quality onions are sold by individual farmers at lower prices. This undermines the credibility of the brand and the fact that true quality onions are offered. Therefore, in the long run, there should be worked towards unifying this price.

Next to this, it is of common understanding that within the UGPOS organisation, the price for large order quantities are subject to negotiations. It is recommended to not change this aspect too much in order not to lose important customers as long as the ranges of the price discounts for different customers are kind of similar. Because as soon as the wholesale customers talk to each other and realize that another intermediary was able to buy the same amount of onions at a lower price, the relationship between UGPOS and that buyer can be damaged due to the feelings of disrespect or injustice. What could however be installed to retain wholesale customers

in a more secure way is the provision of extra discounts for long-term customers. If a customer for example buys a large amount of onions for the third year in a row on a regular basis, a system can be set up in which that customer will be rewarded with a lower price. This would preferably be set up as a percentage of the total costs. To determine how much discount can be given to the loyal customers, a detailed profitability analysis should be set up. The profit margin for a certain quantity should be known, in order to ensure that the business stays profitable even if discounts are given. Although, it must be said that as long as there is no uniformed pricing and customers can negotiate different deals, this discount system for long lasting clients can be undermined.

4.2.4 Place

As mentioned by the UGPOS organisation, the local market is not saturated but also not very profitable. A considerable part of the local buyers opt for less quality onions and therefore it is advisable for UGPOS to focus on those intermediaries who are really looking for quality onions in the local market. As plans are made to sell as much as possible outside the province, the omni-channel approach and thus the introduction of establishing contacts in a digital way should help develop a more spread out network of clients. Concerning the international sales to Togo and Lomé, the clean and healthy brand image with the green packaging should be played out well in order to convince other acquaintances of these international traders of the good quality of the Sanmatenga region onions. As local markets are still the main place where intermediaries buy their onions in Burkina Faso, it is important to stay present and visible to everyone in the business, even if not many new customers can be acquired every time.

4.2.5 Service

As previously discussed in the Customer Relationship Management section, it is fundamental to make the customer feel as if they are kings. It shows them that you care about the service you delivered and how you can improve this service in the future. A specific element of this good relationship management is the after sales service. This means that after a product is purchased, there is a check-up performed on the customer satisfaction. This check-up should at least include a moment in which the customer can give elaborative feedback on the quality and service but also more detailed questions about possible improvements can be asked. You will find a possible question survey to manage the after sales process better in *Appendix A: Customer survey for UGPOS.* By going back to the customers, they will give you insights in where the business is struggling and what can be used as a competitive advantage that should be further focused on.

The customer satisfaction is key to a healthy organisation. Customers should be able to express their opinions and provide feedback to different aspects of the business. A comparative analysis of people's feedback can help set priorities in the future. Moreover, you become aware of your weak spots, and you can identify the problems to solve. It is an unwritten rule that happy customers return, so this means an increasing customer retention rate and thus sales for the company. A commonly used technique to get the customers opinion is the Customer Satisfaciton Score (CSAT) (Nicastro, D. 2018). This score is determined based on very simple and straightforward questions, where customers should evaluate the product on a rating scale. This rating scale can be from 0-10, in written descriptions or with symbols. For the attached survey, different levels of happiness are expressed with coloured faces. These are very intuitive and increase the chances of customers taking the time to answer the survey. Rating on a number scale can be more difficult if they are indifferent to a certain question asked, so this is avoided.

The customer survey should be sent to every customer not longer than two weeks after the completion of the purchase (after delivery). You should give the customer time to consume the products (or sell through) before you can ask for feedback about it. After retrieving the surveys, you should investigate them critically. Always question whether or not the survey is filled out truthfully. If a customer is giving only positive feedback, but still states he is not likely to purchase onions from UGPOS again, you could contact them and ask for a more specific explanation. If you get negative feedback on some of the points, you can try to counter this by improving those specific issues. Keep in mind here that one negative comment does not necessary mean that you should implement major changes. Always consider the circumstances of the specific case and talk again with the customer if you don't understand their point.

As discussed in the strategic part, the customer service should not be limited to reactive actions. Proactively reaching out to the customers increases their trust and can facilitate desired results. In some cases, it involves monitoring products (ex. informing customers about the new harvest) and problems can be solved before they even occur.

4.3 Action plan

To improve sales and to increase the market share, a marketing plan should be implemented to create a strong brand. Therefore, UGPOS should position itself on the market as providing the best quality. These are some key actions that will help thriving towards increasing sales:

1. **Position** yourself clearly **as product leader,** by showing customers that you have the best quality onions. Putting emphasis on visual differentiation of the onions in

comparison with onions of competitors helps. Stand out from the competitors by providing the best (after sales) service.

2. **Create a strong and recognisable brand**. Using a recognisable logo that returns on banners, advertisement and packaging. Link the brand to one specific colour to enhance brand recognition. The brand serves as a quality label. Therefore, all advertisements should mark the quality of the onions.
3. **Target quality seeking customers,** both locally but also internationally. The focus should be on selling to intermediaries, as you can sell larger quantities and maintain closer ties. Reach customers by on omni-channel approach, meaning connecting with customers both physically as digitally.
4. **Develop Customer Relationship Management capabilities.** Maintain good relationships with profitable customers. Improve customer retention by providing financial & social benefits.
5. **Send out surveys to obtain feedback.** Act upon the feedback to constantly upgrade product and service.
6. **Ensure a uniform price mechanism.** Make sure that individual members do not sell the same kind of onions for a lower price. Communicate clearly on prices. However, bulk discounts are possible.
7. **Ensure the best quality of rice.** Choose seed suppliers wisely, keep cooperating with INERAN as supplier.

UPPRS

1. Problem statement and research question

The rice cooperative *"Union Provincial des Producteurs de Riz de Sanmatenga"* has been working for several years to improve the agricultural yields of its 5963 members through the introduction of simple production technologies. The cooperative improves the quality of rice through the use of better seed qualities, reduces post-harvest losses and improves the marketing of rice through the negotiation of institutional markets (Douamba, 2020). Recently, the cooperative acquired a rice huller in order to add value to its production. Unfortunately, this acquisition was not preceded by an in-depth analysis to ensure the cost-effective use of the equipment. This is however very important, because it will determine the operations of the organisation for the upcoming years. There is a clear need for a suitable business plan focused on the operation of this huller within the cooperative. This brings us quite straightforward to the following research question: "What operational plan should be followed by the cooperative to ensure cost-effective use of the purchased rice huller during the lifetime of the equipment?"

To answer this question, different steps must be taken. An external background analysis about the rice market in Burkina Faso and the different stakeholders will provide the needed insights that should be understood before a business plan can be proposed. Another point of investigation for the literature study is the machinery itself, the rice huller, to understand which types of machines exist, how they work and what the main benefits and drawbacks to this type of machine are. After understanding the background, a thorough investigation of the current operation (or plan of operation) of the machine will show the financial impact on the cooperative. In addition, it is important to consider different scenarios for the operation of the huller and perform a comparative case analysis of these scenarios. From this, an optimal scenario will be identified, taking into account not only the financial possibilities but also the feasibility and chance of success of the scenario. Based on this research, the future strategy of the organisation can be steered.

2. External background analysis

2.1 Rice market in Burkina Faso

In this section, an analysis will be given of the rice market in Burkina Faso. By using the PESTLE framework for the analysis (Law, 2009), a comprehensive overview will be given of the political,

economic, social, technological, legal and environmental aspects influencing the local business of rice production.

Political and legal factors

Insecurities– The political situation in Burkina Faso has remained remarkably stable since 2014. However, the year 2019 was one of the most violent and deadliest years in Burkina Faso. Violent crimes and terrorist attacks are on the rise. There is an expansion of activities of different militant Islamist groups and an increase in illicit trafficking of drugs, arms, and people. All these insecurities are a threat to stability in the country (Eizenga, 2019). As a result of this persistent civil insecurity, associated with renewed attacks, robberies, banditry and inter-community clashes, food security conditions worsened significantly in 2019 (Food and Agriculture Organization of the United Nations, 2020).

Political will – The government of Burkina Faso acknowledges the importance of rice production and there is a strong political will for the country to become food self-sufficient in rice. Increasing the national rice production has become of strategic importance for the government, that developed the 'New rice development strategy' (NRDS-II), aiming to achieve self-sufficiency in rice by 2025 (Coalition of African Rice Development, 2019).

Governmental interventions - In this context, governmental interventions support the industry. The government focuses on its sovereign role by supporting the establishment of infrastructure, for example by the construction of hydraulic dams and rural roads. It also supports capacity building, access to finance and control (Coalition of African Rice Development, 2019).

Legal environment – In Burkina Faso, exports are free of all duties and taxes. There is a phytosanitary certificate for import and export for all sectors, as well as a list of products subjected to a national certificate of conformity, including rice and wheat flour. Standards have been set for rice, wheat flour, millet, corn, durum wheat semolina, husked rice packaging and cereal packaging (UNERIZ, 2017).

Foreign direct investment – Burkina Faso has applied a de facto policy of openness to FDI. However, a legal framework to establish protection for investors in the country and to provide more certainty for investors over the long run is still needed. The government can still put in place relatively arbitrary barriers to FDI (Conférence des Nations Unies sur le Commerce et le Développement, 2009).

Economic factors

Importance of rice production in Burkina Faso - Agriculture is one of the most important drivers of the economy and the incomes in Burkina Faso. The cultivation of rice has growing importance, taking the fourth place of cereals in the country as regards to the amount produced and the agriculture acreage it includes, but also in the consummation of the inhabitants. Rice represents 8% of the total production of cereals in the country and 5% of the total cultivated areas (Grow Africa, 2016).

Consumption of rice – In 2015, the consumption of rice in Burkina Faso amounted to 500,000 tons. In contrast, the national production of rice was only 226,000 tons in that year. Thus, production can only serve around 45% of the population's needs. This percentage even decreased to 30% in 2018 (Coalition for African Rice Development, 2019). This mismatch between national supply and domestic demand leads the country to annual imports around 275,000 tons (Grow Africa, 2016). With current consumption trends, it is estimated that more than 600,000 tons of rice will be needed by 2025.

Social factors

Small rice farmers – About a fifth of the agricultural households in Burkina Faso produce rice in the rainy season. The rice production is mostly carried by small family farms, involving 286,542 households who each produce on small areas with an average of less than 0.3 ha per household. These farmers are organised around groups or cooperatives. The average yield of rice is 20,116 ton/ha (Fall, 2016).

Thus, the production of rice is important for the creation of jobs and revenues for a large number of households in the country, and especially in the Sanmatenga region where the plain is suitable for rice growing. It also provides opportunities and jobs for women in the region, who are largely involved in the parboiling process of rice. This situation contributes strongly to the reduction of poverty (particularly to women) in the region. However, the lack of financing causes technological restrictions (Fall, 2016).

Technological factors

Financing challenges – The main challenge for domestic rice production is the lack of financing. A reason for that is a highly fragmented value chain. There are for example not enough large-scale processing mills and a lot of small producing farmers. These small farmers have limited access to capital expenditure financing. They have not sufficient cash at the start of the harvest to purchase the right amount of quality and seeds and have no funding for mechanization. There

is a lack of storage capacity for processing. Other factors also impede productivity, such as bad roads and poor electricity (Grow Africa, 2016).

Environmental factors

Harvest season – Burkina Faso has a tropical climate with a dry season lasting from October to May and a rainy season from June to September (Weather & Climate, 2020). Therefore, rice production is seasonal. The main harvesting season is October and November, wherefore planting is done earlier that year in May and June. Off-season harvesting is in May and June, where planting is done from January to February (Ricepedia, 2015).

Geographically – Unlike most of its neighbouring countries, Burkina Faso is landlocked. Therefore, international trade is less evident. On the positive side, the central location in West-Africa facilitates trade in the region (Google Maps, 2020).

Quality of rice – Environmental aspects do have an influence on the quality and taste of rice, which appears to have a positive impact on the way how inhabitants perceive domestic rice. However, it also depends on the type of rice. Local white rice for example, is perceived as rice of poorer quality. This type of rice also absorbs less water on cooking. Therefore, it has less 'volume' and the price is perceived as being higher as the parboiled rice.

Concluding opportunities and threats

The pestle analysis shows some important factors that influence the rice production industry in Burkina Faso. It is useful to conclude with a short overview of the main opportunities and challenges of domestic rice production.

Opportunities - Burkina Faso has strong unexploited potential for rice production. Firstly, the country has natural potentials supported by the existence of hydro-agricultural infrastructures. Secondly, less than 10% of the 500,000 ha of lowland that could be developed has been developed. Thirdly, the production cannot keep up with the population demand at the moment. Lastly, the quality, taste and the fact that the rice is suitable for certain specific dishes, makes the national rice appreciated by the consumers.

Challenges – However, some aspects impede the flourishment of domestic rice production. The lack of financing for small farmers hinders technological evolution. Today, the limited infrastructure, such as roads and electricity, still causes difficulties. The government should also provide better protection for investors, clarity on business rules, clarity around responsible bodies for rules and regulations, and access to legislation to attract investments.

Imported rice – Next to these main challenges, domestic rice production has fierce competition with imported rice. It appears that consumers in Burkina Faso prefer imported rice. Firstly, little stones and other residues can be found in locally produced rice, whereas imported rice is often industrially processed and therefore cleaner. Secondly, locally produced rice is less dry than imported rice as it tends to enter the market in the year of the harvest. For this reason, when imported rice is cooked it swells more which is therefore perceived as providing larger quantities than national rice (Hauer & Ostergaard Nielsen, 2020). Other reasons are the unavailability, for example the lack of stock in local markets, and the difficult preparation process of national rice (Fall, 2016).

More than 55% of the rice consumption constitutes of imported rice. This rice is very dry as it is over-aged buffer stock from Asia, with major importer Taiwan. Therefore, it increases volume while cooking by 25-30% more than fresh local rice. The rice is imported by large traders and is most easily accessible for the consumers in the larger cities. Moreover, imported rice is almost 40% less expensive (Fall, 2016).

2.2 Stakeholders in the rice sector in Burkina Faso

Producers

In general, most rice producers are small with an average operating area of about one hectare on large perimeters and less than half a hectare in small perimeters. These different producers organise themselves in cooperatives (like UPPRS), working to support rice farmers in the production and marketing of paddy rice. The mission of these organisations is to contribute to the development of the social and environmental aspects of the rice sector in Burkina Faso (UNERIZ, 2017).

Processors

There are two types of paddy rice processing: parboiling and hulling (UNERIZ, 2017).

- Parboiling consists of pre-cooking (a steam treatment) of the paddy rice before it is peeled. This activity is mainly carried out by women. There are multiple goals: first, parboiled white rice is more nutritious than other white rice, because the baking migrates several nutrients to the centre of the grain. Secondly, the steaming increases the grain yield during hulling. Steamers process a little more than half of the national paddy production (52%) in Burkina Faso. Different unions exist all over Burkina Faso (including UERWL) on a regional level, but also on a national level (the Union Nationale des

Etuveuses de Riz du Burkina – UNERIZ), of which UERWL is also a part of. The professionalization of the link allows for a collective promotion of the steamers. However, in the area of intervention of UERWL, there are also steamers external to the union which provide unprofessional parboiling for the local market.

- Hulling (the automatic process of removing the outer husks of grains of rice) is done by industrial and semi-industrial machines, of which the major production sites are mostly concentrated around large cities. In addition to major processing cites (with capacities of more than 30,000 tons/year), there are hundreds of artisanal hulling units which are service providers used by the majority of steamers and some producers.

Traders

In terms of marketing, different categories of traders who buy processed rice for resale can be identified: wholesalers, semi-wholesalers and retailers (UNERIZ, 2017).

- Wholesalers ensure the transfer of products from rural markets to consumer markets where they sell to both retailers and end consumers. They mostly have storage capacities of more than 500 tons;
- Semi-wholesalers are characterized by the sale of smaller volumes of rice, not necessarily involving wholesalers for their own purchases. They have storage capacities of around 100 tons or less;
- Retailers are the smallest sellers, providing only small quantities of rice to end consumers.

2.3 Rice huller

In the business case for UPPRS, the cost-effective use of specific equipment used to process rice will be calculated. As the seeds of the rice plants are to be processed from paddy to brown and later on white rice for final consumption, machinery with different capabilities are to be used. To fully understand which specifications such a machine should possess, the processing of rice is shortly explained.

Originally harvested rice grains (also called paddy) consist of husk and brown rice (Dhankhar, 2014). Brown rice on its end also consists of bran. For the rice to be edible, both the husk and bran need to be removed in order to attain white rice. This happens through different processes that are altogether combined called the rice milling. It is thus fundamental that a good machine can fulfil the following processes to effectively process the rice grains to edible white rice: cleaning the harvested rice grains, removing the husk, whitening or polishing of the grains (i.e.

removing the bran and germ of the brown rice) and the separation of white rice, husk, paddy and brans (IRRI, 2020 and Dhankhar, 2014).

UPPRS acquired a rice huller model SB-30, this machinery includes the most important processes. With a paddy pre-cleaning vibrating screen, foreign material such as straw, weed seeds, soil and other inert material are removed (IRRI, 2020 and Dhankhar, 2014). The grains are clean to start the real milling process which includes removing the husk from the paddy. This paddy husking operation is argued to be one of the most important stages of the milling process as it determines the quantitative and qualitative losses of rice (Alizadeh, 2011). In the case of the SB-30 model, the rubber-roll husking method is used. This refers to the type of husking machine that is referred to as the most efficient hulling method. In this process, two rubber rolls are operating at different speeds to remove the husk from the paddy. Compared to other husking methods such as the under-runner disc huller or the steel huller, the rubber-roll huller is argued to cause less breakage of grains and to have higher hulling efficiency (85% to 90%) (Dhankhar, 2014).

Other advantages of the rubber-roll huller described in the literature are that the machine is very compact compared to a disc huller and that it causes less vibration. Next to the strong hulling efficiency and the fact that by-products are free from sand and other dirt, also several disadvantages of this type of machine are reported. The rubber roll husker is said to have a very high initial capital cost compared to other machines as well as a higher operational maintenance cost as the rubber rolls wear off. On top of this, a skilled labourer is needed to operate and maintain the machine as well as higher power consumption and a lower machine lifetime are noted compared to disc and steel hullers. This makes that the strong advantages also have their direct counterparts in strong disadvantages. However, up to date, the rubber-roll husking process as included in the SB-30 model is argued to be the most efficient hulling method (Nikartsu Hitech Industries, 2020 and IRRI, 2020).

Finally, the SB-30 rice huller model also includes magnetic separating and a rice polisher (Nikartsu Hitech Industries, 2020). This means that at the end of the process, husk, polished white rice and brans are all pushed out of the machine separately. This makes this model an all-round machine that is able to take on the entire rice milling process.

3. Research Methodology

3.1 Problem formulation

To ensure cost-effective use of the newly purchased equipment, different questions have to be investigated. First of all, an in-depth financial analysis of the investment decision will be made. As the purchase of the rice huller is expanding the product offer of the organisation (including white rice and not only paddy rice), this decision determines the organisation's operations and products for the upcoming years (Hillier et al., 2017). Therefore, we start with investigating if the purchase of this equipment was the right management decision. A first ex-post quantitative assessment will be done based on the current use of the huller, determining whether or not this acquisition is adding value to the organisation or not, and how much. This is the first fundamental question, which actually should have been answered before the new investment was made (Luypaert, 2020). If the investment is not adding value to the organisation, the consideration could be made to sell the machine.

A number of different procedures commonly used in practice will be performed for the financial analysis, including calculation of Net Present Value, Internal Rate of Return, Discounted Payback Period and Profitability Index (Hillier et al., 2017). Multiple investment criteria are considered to reduce the bias that can form if only one would be investigated. Starting from the theory, following a deductive approach the findings will be analysed and there will be decided if the machine is value-adding to the organisation.

If this is the case, a break-even analysis will show the point at which use of the machine, the process turns profitable (Atkinson et al., 2012). This will show the minimal amount of volume that has to be sold over a period of time to make the machine neither lose nor gain money. This value is important for the cooperative in a sense that it is the minimum amount they have to sell over that period. Every additional unit sold will result in extra profits.

Afterwards, the causal relations of the variables will be explored, and improvement measures will be formulated based on a scenario analysis of the different inputs (that are under the control of UPPRS) (Hillier et al., 2017). Taking into account the capacity constraints, the optimal production level will be determined to ensure a cost-effective use for the lifetime of the machine. This can be used to make an operational schedule for the huller depending on the anticipated demand. From this operational plan, the business strategy for the future of the cooperative will be deducted.

Secondly, following a qualitative research, the major risks and drawbacks, but also the new opportunities linked to the acquisition of the equipment will be formulated. An investment decision should not only be based on financial numbers but also fit into the strategy of an organisation (Luypaert, 2020). Even if the machine would for example not create financial profits, it could still open doors for the company like access to new markets, new products, etc. Based on knowledge gathered during several courses this year (i.e. Operational Management, Marketing management, Corporate Finance and Financial & Strategic Management Accounting), several measures will be recommended to mitigate the risks and exploit the opportunities.

The third part of the capital budgeting exercise consists of the investigation of alternative investments, however this will be very limited since in this case the equipment is already purchased. Still, this is important to keep in mind for further investment decisions, because an investment decision in one area might lead to missed opportunities in another.

3.2 Identification of the question hierarchy

The quantitative assessment results in the following investigative questions:

- Was the rice huller a good financial investment decision based on the given financial metrics?
- What factors influence the cost-effective use of the rice huller?
- Can the main costs be reduced / the effectiveness be increased?

The qualitative assessment should provide answers to the following questions:

- What are the risks (and major drawbacks) linked to the acquisition of the equipment?
- What alternatives could provide better results in comparison to the rice huller?

These investigative questions are derived from the management question based on the theory described in the research design and knowledge gathered during the courses.

3.3 Research Design & Data Collection

To identify and analyse the financial performance of the rice huller, primary financial data will be gathered from the annual report and other reports received from the organisation (Douamba, 2020; GRAD Consulting Group, 2017; Lompo, 2017). These are the most important data sources where we can base our research on, providing accurate and up to date data on the organisation. Since not all the data needed for the project is available in these documents, additional primary

data will be collected through interviews with the contact person of the organisation, Nadège DOUAMBA. These interviews are composed of several questionnaires sent through email, to ensure the correct understanding of the provided information. The first meeting through Skype proved to be inefficient because of poor internet connection and language barriers, therefore we decided to switch from Skype calls to email communication. The primary data is required to be able to make an accurate investigation of the financial performance of the new equipment. All the gathered data is summarized in Appendix B: List of primary data gathered through the interviews with UPPRS.

For the risk assessment, both primary and secondary data sources will be consulted. General risks for the organisation are deduced from the reports of the organisation. The specific risks related to the equipment are collected from secondary data, mainly from the sources mentioned in the background analysis (retrieved from Vlerick databases).

Several data analysis methods will be used to evaluate the cost-effectiveness of the purchased rice huller. First of all, several investment criteria are calculated to determine if the investment is creating value for the organisation, in order to decide whether they should keep the machine or consider to sell it. The Net Present Value (NPV) is calculated as a measure of how much value is added by the purchase of the rice huller over its lifetime (Hillier et al., 2017). The NPV represents the difference between an investment's market value and its costs, and is calculated accordingly (Luypaert, 2020). A positive NPV indicates that the investment should be accepted. To calculate the NPV, future cash flows and costs related to the investment are estimated and discounted to estimate the present value of those cash flows. The NPV is then approximated by the difference between the present value of the future cash flows and the cost of the investment. Several assumptions are made to estimate future cash flows. All needed input numbers are based on the primary data gathered from the interviews with the organisation (see Appendix B: List of primary data gathered through the interviews with UPPRS):

- The future cash inflows are estimated as the additional revenues generated by the sales of white rice in comparison to the sales of the paddy rice. This includes both the sales of the white rice and the sales of the waste products, i.e. hulls of the rice. The prices for all products are known, while the sales volumes are estimated based on a growth percentage for the upcoming years.
- The future outflows of cash include the operating costs of the huller: labour cost, fuel cost, emptying cost and maintenance cost.
- The discount rate used to calculate the present value of the future cash flows is estimated based on a *hurdle rate* (minimal required return), taken from the *Projet*

de Renforcement des capacités de production, de stockage et de commercialisation du riz (GRAD Consulting Group, 2017). This is done after consulting our finance professor, Mathieu Luypaert, regarding the limited financial information available and best practices in these capital budgeting exercises.

- The tax rate on the sales of white rice is obtained through the interviews.
- The depreciation is straight-line to a zero salvage (Harrison et al., 2017), determined based on the estimated lifetime of the huller and the purchase price.

As a second criterion, the Internal Rate of Return (IRR) is determined as a single rate of return that summarizes the merits of the project. The IRR equals the discount rate that makes the NPV of the investment zero. The rule says that the investment is acceptable if the IRR exceeds the required return.

In addition, the discounted payback period is determined as the length of time required for an investment's discounted cash flows to equal its initial costs.

As the last criterion, the profitability index or benefit-cost ratio is calculated as the present value of the investment's future cash flows divided by its initial cost.

All inputs needed for these calculations are already obtained when specifying the NPV calculation.

Looking at these different criteria, the investment decision will be evaluated. The combination of different indicators gives a more reliable insight to make the investment decision.

After the confirmation of the viability of the investment, a static profit analysis and break-even analysis will determine the cost-effectiveness of the machine (Stouthuysen, 2020). The break-even analysis is used for analysing the relationship between the sales volume and the profitability of the white rice sales (Hillier, et al., 2017).

The accounting break-even is calculated as the sales level that results in zero net income of the project, both in FCFA (Central African francs) and in volume (tons) sold. The contribution margin per unit and contribution margin ratio are also determined as respectively the difference between the selling price and the variable cost, and the ratio of the contribution margin to the revenue per unit (Atkinson et al., 2012).

The static analysis is improved by performing a scenario analysis (Hillier et al., 2017). The basic approach to evaluating projects involves asking what-if questions. Our goal in performing such an analysis is to assess the degree of forecasting risk, and to identify the most critical

components of the success or failure of the investment. The projected future cash flows are still estimations of reality, the chance that the cash flows in reality are equal to the projected ones is close to zero. This is no problem, as the purpose of this projection is to have an average idea of the outcome of the project, not for the projected cash flows to be exactly right. If the inputs to the analysis are seriously in error, it can result in a classic GIGO (garbage in, garbage out) situation. Therefore, the answer could be seriously misleading. To account for this estimation risk, we wish to investigate the impact on our estimates of different assumptions about the future. The first estimations (gathered from the interviews with UPPRS) will be called the *base case*. Next to the base case, we will investigate lower and upper bounds on the different components of the project that are out of control of UPPRS. In addition, the factors that are in control of UPPRS and that will define their future strategy are investigated in different scenarios to be able to make a strategic recommendation about the operations of the rice huller in the future.

4. Results & Discussion

4.1 Quantitative

The results described below can be also be found in the Excel document "CostEffectivenessHuller", which is delivered with this report.

Capital budgeting

To determine if the machine was a value-adding investment or not, four investment criteria are calculated and evaluated. The future inflows of cash are determined by the additional revenues that the sales of white rice plus waste products are generating in comparison to the sales of the paddy rice. Paddy rice is usually sold at 160 FCFA/kg, while white rice has a significantly higher price of 400 FCFA/kg. Since these prices have been stable over the past five years, no price increase is assumed in the future either. The husking efficiency is 65% and corresponds to the percentage of total mass of white rice recovered from the mass of the corresponding input paddy. The excess 35% hulls and broken rice particles are considered waste material, but can be put to use as for example building materials, biofuels, animal feed, cosmetics, etc. (Huang & Lo, 2019). These are therefore sold in bags of 50kg at 1,500 FCFA. The total additional revenue per kg paddy that is processed amounts thus to 110.5 FCFA/kg. The increase in revenue per kg sold is almost 70%, so we can already forecast that the investment criteria will be very positive if the operating costs are low.

For the investment criteria calculations, due to diverse reasons not the total volume of produced paddy rice should be used. First 20% of the total produced volume is subtracted as this is used

for own consumption. Afterwards, 50% of the remaining volume is assumed to be processed by the huller, the rest will still be sold as paddy rice. The total volumes produced of the paddy rice are forecasted by UPPRS to grow at a rate of 10% annually. Here we want to make a remark on the fact that based on the growth of the past 5 years, this 10% rate is likely to be unrealistic. Table 1 summarizes the total quantities produced since 2015 and the rate of increase/decrease, showing the instability of the growth in volume.

Table 1 Quantity of paddy rice produced in the past 5 years (in tons)

Year	2015	2016	2017	2018	2019
Quantity produced in tons	5,311	6,503	6,210	6,012	5,899
increase/decrease rate %		+22%	-5%	-3%	-2%

The operational costs for the huller include labour cost, emptying cost, fuel cost and maintenance costs. Operating the huller requires two employees, working at a monthly wage of 20,000 FCFA per person. The monthly emptying costs are 2,300 FCFA. For the fuel, a cost of 580 FCFA/l is assumed. The huller consumes approximately 15 litres per day, equivalent to hulling 10 tons of paddy. The fuel prices in Burkina Faso have been volatile over the years ('World Development Indicators (WDI) - knoema.com', n.d.), in both directions (increasing and decreasing) so no cost increase is assumed in the base case. The maintenance costs are estimated at 25,000 FCFA/quarter.

The lifetime of the huller is estimated at 5 years, and with a purchase price of 3,000,000 FCFA the annual depreciation amounts to 600,000 FCFA.

The results of the four investment criteria are summarized in Table 2.

Table 2 Results of the four investment criteria (NPV, IRR, Payback Period, PI) for the rice huller – Base Case.

Net Present Value (FCFA)	**840,071,539**
IRR	**6882%**
Payback period (years)	**0.0148**
Profitability index	**420**

All criteria are extremely positive, showing the significant improvement in profitability of the organisation by the purchase of the rice huller. Here we should mention that these calculations

are highly questionable since the projection of volume growth is likely to be unrealistic. As a lower bound scenario, we checked the criteria when the volume growth is equal to the previous year (i.e. -2%) and the annual costs grow at an extreme +10%. Even in this scenario, all investment criteria stay extremely positive and the purchase of the huller is regarded as a good investment (Table 3). Because of the positive results, no upper bound case is considered as even in the lower bound case the purchase of the equipment proves to be extremely proftable.

Table 3: Results of the four investment criteria (NPV, IRR, Payback Period, PI) for the rice huller – Lower bound

Net Present Value (FCFA)	**605,792,047**
IRR	**6120%**
Payback period (years)	**0.0166**
Profitability index	**294**

The same conclusion can be made when the additional revenues generated by the rice huller and the additional operating costs for the use of the machine are compared. If we assume the machine operates 25 days per month, at a hulling rate of 10 tons per day, the total operating costs are 1.33 FCFA/kg. This is only about 1% of the total additional revenues, so the expected increase in profits is significant. Here we want to remark that maybe not all costs related to the use of the huller are taken into account. There could be for example extra transport costs, when paddy is no longer directly transferred to the clients but first brought together at the machine. There could also be an increase in warehouse costs, for this same reason. There was no information available on these matters, so they are not taken into account, although it is safe to say they will not cause major differences in the outcome of the calculations.

Cost-effective use of the equipment

The *static profit analysis* first determines the total annual revenues generated by the sales of white rice and the waste products, taking into account the operational costs for the use of the rice huller. This value is then compared to the revenues that would be generated without huller, so by the sales of the same volume of paddy rice, and the annual increase rate is calculated.

In discussing the break-even point, a differentiation is made between the fixed costs and the variable costs related to the use of the machine (Stouthuysen, 2020). The variable costs include the raw materials (paddy rice) and fuel costs, as these are directly proportional to the total quantity of output. The fixed costs include the depreciation of the rice huller, maintenance costs, monthly emptying cost and the labour cost. As there are always two people needed for the

operation of the huller, the labour cost is fixed each month the machine is operational, so they do not depend on the amount of paddy rice that is hulled.

The static profit analysis is done based on a 'safe' assumption of 6,000 tons of paddy production for this year[1]. If 50% of the paddy up for sale (so 80% of the total produced volume) is processed by the huller, a total of 2,400 tons should be hulled this year. At a production rate of 10 tons/day, this means the huller has to be operational for 240 days, or 10 months (at an average 25 working days/month, assuming a 6-day workweek). From this we can conclude that the initially planned 6 months are not sufficient to provide the requested quantities. The total additional revenue (in comparison to selling only paddy rice) equals 260,805,920 FCFA, or 54,355 FCFA/ton paddy rice. The annual increase rate of the revenues is approximately 34%.

The *break-even analysis* results in a total of 928kg paddy rice that has to be processed and sold as white rice + waste material per month to break even. The contribution margin is 119.630 FCFA/ton paddy rice, with a contribution margin ratio of 44%. As the daily capacity of the huller is 10 tons, this concludes that less than half an hour operating time per month should be sufficient to cancel out the fixed costs associated with the huller.

As a result, operating the huller is very cost-effective because of the low operating costs and it can be concluded that the equipment should be used as much as possible.

Scenario analysis

A minimum monthly processing of about 1 ton (in the months that the huller is operational) is required for the huller to be profitable within the organisation. There can be safely assumed that this lower limit will always be reached, as this is only 10% of what can be done on a daily basis. To increase the cost-effectiveness of the machine even more, the next step is to perform a scenario analysis. As the contribution margins are so high, the question is asked if UPPRS should process all their rice with this machine, instead of only the anticipated 50%.

Four different scenarios are composed of a variation in percentage level of the total paddy rice production that will be processed by the huller before selling. UPPRS currently planned for the huller to operate about six months per year, in order to hull 50% of the total paddy production. In another interview, the current long-term contracts for the paddy rice sales are discussed and it was mentioned that about 60% of the paddy rice will be sold through fixed contracts, leaving only

[1] Since 2016, the annual volume produces has been around this number. Therefore we can 'safely' assume that in the future it will be at least equal to this, even if there is actually a projected growth of 10%.

40% to be husked. Different levels are examined in four scenarios to investigate the optimal level of processing to optimize the profitability of the organisation. The different scenarios are:

1) Sell 60% paddy rice + sell 40% hulled rice
2) Sell 50% paddy rice + sell 50% hulled rice
3) Sell 40% paddy rice + sell 60% hulled rice
4) Sell 30% paddy rice + sell 70% hulled rice

For each scenario, the total additional income (FCFA) and the break-even point (tons) is determined in the same way as in the static analysis. Based on the sales projections for the upcoming years, we investigated for the different scenarios when the capacity of the huller would become a constraint and the purchase of a second rice huller could be considered. The estimated volumes sold are based on the growth projections for the next years of the base case, but this base case is complemented with a lower bound investigation to investigate the impact on our estimates of different assumptions about the future. The results of the four scenarios are summarized in Table 4.

Table 4 Results of the four possible scenarios for the percentage of paddy and white rice

	2020	2021	2022	2023	2024
Yearly production paddy (tons)	6.489	7.138	7.852	8.637	9.500
Scenario 1 = 60% paddy, 40% hulled					
machine working months / year	9	10	11	12	13
Total additional income (FCFA)	225,757,590	247,799,119	273,399,031	301,263,164	331,617,941
Break-even point (kg)	911	855	810	772	739
Scenario 2 = 50% paddy, 50% hulled					
machine working months / year	11	12	13	14	16
Total additional income (FCFA)	283,132,563	310,120,049	341,180,514	377,171,255	414,333,001
Break-even point (kg)	810	772	739	712	667
Scenario 3 = 40% paddy, 60% hulled					
machine working months / year	13	14	16	17	19
Total additional income (FCFA)	339,007,535	372,840,979	411,219,697	453,037,046	497,048,061

Break-even point (kg)	739	712	667	649	618
Scenario 4 = 30% paddy, 70% hulled					
machine working months / year	15	16	18	20	22
Total additional income (FCFA)	396,382,508	435,361,909	479,401,180	527,402,838	581,263,121
Break-even point (kg)	688	667	632	604	582

Looking at the four scenarios, a notable difference can be seen in both the additional income and break-even point. If the projected 10% annual increase in volume will be realised, in all four scenarios the capacity of the huller will not be sufficient to husk the desired annual amount during its lifetime. Even in scenario 1, with the lowest amount of paddy processed, the capacity will be a constraint in the fifth year of huller usage. In the qualitative discussion (see below), different options are discussed how the capacity of the huller could be increased. Keeping in mind this could reduce the lifetime of the equipment, this could be an alternative to purchasing another huller.

The four scenarios are, although all positively looking, giving insight on the possible increase in additional income that can be realised by adjusting the percentage of paddy processed. The revenue increase rates for the four scenarios are respectively 27%, 34%, 41% and 48%. This is the increase in revenues achieved by hulling 40/50/60/70% of the paddy instead of selling everything as paddy rice. As could be deducted from the static profit analysis, the more paddy that is processed, the higher this increase.

As mentioned before, the 10% growth rate of volume paddy produced is highly unlikely to happen. For this reason, the scenario calculation is redone, assuming a 0% growth rate as a lower bound. This results in the following:

Table 5 Results of the four possible scenarios (lower bound case - 0% volume growth)

	0% growth rate, so every year from 2020-2024
Yearly production paddy (tons)	5,899
Scenario 1 = 60% paddy, 40% hulled	
machine working months / year	8
Total additional income (FCFA)	205,587,318
Break-even point (kg)	981
Scenario 2 = 50% paddy, 50% hulled	

machine working months / year	10
Total additional income (FCFA)	256,784,148
Break-even point (kg)	855
Scenario 3 = 40% paddy, 60% hulled	
machine working months / year	12
Total additional income (FCFA)	307,980,978
Break-even point (kg)	772
Scenario 4 = 30% paddy, 70% hulled	
machine working months / year	14
Total additional income (FCFA)	360,677,807
Break-even point (kg)	712

As can be seen, if no volume growth is assumed, only in scenario 4 the capacity of the huller is a constraint. This scenario is thus not feasible for the cooperative, unless another machine would be purchased.

4.2 Qualitative

In this more qualitative part of the discussion, insights will be given in how the cost-effective use of the huller can be improved and what influencing factors should definitely be kept in mind.

Firstly, the cost factors of the newly acquired rice huller are investigated. The most prominent outgoing cash flows are the labour costs, maintenance costs, emptying costs and fuel costs. On top of that also the depreciation of the rice huller needs to be taken into account. However, when assessing the largeness of the different costs, it is noted that the fuel costs are proportionally larger than the rest of the costs. A driver to decrease this fuel cost would thus be desirable. Based on the previous calculations and excel sheets, UPPRS can know exactly how much fuel will be needed on a yearly basis to process the paddy rice with the rice huller. This information can give access to new opportunities. A possible option to decrease the fuel cost could be working together with other local organisations like UERWL or UGPOS, as they also possess a yearly demand for fuel. The joint purchase of fuel from a wholesale supplier can result in cheaper prices. As the amount that you will purchase from the wholesale supplier will be bigger than purchasing the fuel multiple times a year for smaller periods of time, you can leverage more buying power as a consumer and demand a lower price per litre.

As the other costs related to the operation of the rice huller are reasonable and minor compared to the incoming revenues of the rice huller's activities, we understand it would be very hard to cut

those costs. The emptying cost is a very insignificant cost compared to the other costs and for the labour costs, the rate of CFA Francs paid per person per month seems reasonable and is also an opportunity of job employment for the community. In the end, as the costs only represent a very small part compared to the additional incoming revenues thanks to the usage of the huller, it shouldn't be worried about.

Secondly, there is investigated whether the effectiveness of the rice huller can be improved based on the financial numbers. As the SB-30 model has a fixed capacity of processing paddy to white rice, it is impossible to increase the daily amount of processed rice unless a second machine is acquired, or night shifts will be run. However, in the current scenario, this would not be needed as UPPRS has fixed contracts with buyers to sell 60% from its paddy rice. This means that 60% of the harvested rice does not need to be processed by the rice huller as it is sold immediately. Nonetheless, as the financial numbers pointed out, the selling of white rice is more profitable. Therefore, it is reasoned that a shift in the amount of rice preserved by fixed contracts is preferable. The feasibility of this plan is hard to estimate as some local buyers presumably prefer to purchase the cheaper paddy rice. Nonetheless it should be mentioned that if the amount of white processed rice sold increases, this will bear its fruits towards the future. As currently only 40% of the total rice production is processed to white rice and sold at the higher price of 400 CFA (instead of 160 CFA for unprocessed paddy rice), it is preferable to try and commit new or existing buyers for fixed contracts of white rice instead of paddy rice.

If the demand is there, increasing the percentage of processed white rice in comparison to paddy rice will cause the capacity of the machine to be exceeded within a few years, or even from the beginning (see scenario analysis above). Different measures can be taken to increase the total capacity, keeping in mind that this could reduce the total lifetime of the huller. A first option would be to hire extra employees, so the total hourly capacity of the machine can be reached (hulling 2.4 tons/hour and thus approximately 20 tons / day). Next to that, the daily operating hours could be increased, by for example working in 2 shifts so the huller can operate 8 hours per day twice (ex. From 6 A.M. to 2 P.M. and from 2 P.M. to 10 P.M.), also resulting in a total 20 tons of paddy that can be hulled per day. Another option could be to operate the huller 7 days per week instead of 6 (using different personnel to not exceed the legally allowed weekly working hours). Instead of increasing the capacity, we would recommend purchasing a second huller as soon as possible if long-term fixed contracts of white rice can be arranged. According to the calculations it would only take 27.5 tons of paddy rice (less than three days) processed and sold as white rice to earn enough extra money for the purchase of a second machine (i.e. 3,000,000 FCFA).

Thirdly, it is important to keep track of the risks and drawbacks that are associated with the acquisition of the rice huller and on how to mitigate these risks. As described in the literature review, the SB-30 model is a rubber roll huller which means there is a higher need compared to other types of machines to take care of good maintenance. As the rubber rolls will wear off by using the machine, it may be preferable to anticipate the fact that one day these rubber rolls will be broken. The pre-ordering of rubber rolls for the SB-30 model (cfr. Alibaba website; look for 'rice huller rubber roller 222 x 152.4') is therefore recommended as in this way, the machine will not be damaged at a time that it is needed to be working.

Another possible strategy of dealing with unexpected damage to the machine (not per se the rubber rolls) could be standing in contact with a rice huller specialist. When the problem can't be solved by the skilled labourers that are handling the rice huller on a daily basis, the help of a specialist will be needed. This person has a deeper understanding of the exact working of the SB-30 model and makes sure that he or she is easy to reach and able to move quickly when contacted by the skilled labourers. Other disadvantages such as the high initial capital cost to acquire the machine and the need for skilled labourers to operate the machine are hard to mitigate as these characteristics are specific to a rubber roll husking machine. A final disadvantage of the high-power consumption links back to the attempts of trying to reduce the overall cost of fuel for operating the rice huller.

Finally, other methods or approaches that could give better results compared to the acquired rice huller are investigated. In this regard, thanks to our extensive literature study it became clear that despite the disadvantages that were just mentioned, the rubber roller huller type as is the case in the SB-30 model is currently the most efficient hulling machine. Next to this fact, it completely makes sense to have acquired the rice hulling machine as the processed rice can be sold with a considerable mark-up compared to paddy rice. Other alternatives in terms of rice hulling machines are thus irrelevant to explore. However, what can be investigated to earn more incoming revenue streams for UPPRS is a more profitable way of getting rid of the residues or waste that is created by processing this considerable amount of rice. Currently, a bag of residues of 50kg is sold for only 1,500 CFA.

4.3 Action Plan

As pointed out, the use of the rice huller is a very profitable move for the organisation, some key takeaways are given to make sure that this profitability is realized:

1. Although 60% of the rice production is currently sold as paddy rice through fixed contracts, **try to commit as hard as possible to fix contracts for the purchasing**

of white rice. As is proven above, currently you have the capacity to hull more rice and the difference in selling price compared to paddy rice is immense. Keep in mind when fixing contracts that not all types of rice are equal to process[2].

2. Take good care of the rice hulling machine by maintaining it professionally. In the UERWL cooperative, the machine is often defected. **Consult with UERWL** what went wrong with their machine and how you can avoid that your rice huller will experience similar problems.
3. To try to increase the contracts of white rice, work together with UERWL. As mentioned, they have a rice huller too, but the newly purchased one is much more efficient. Working more closely together could mean for example that you could provide them with paddy rice, afterwards they parboil this paddy first (type FKR19) and then they can be hulled by the new machine. They currently have excess parboiling capacity, so this could be beneficiary for both cooperatives.
4. When you would be successful in fixing new contracts for the selling of white rice, make sure to create a **clear working schedule**, as proposed in the previous section, and to communicate it transparently to everyone that has a part in it. For customers, service is everything so make sure orders are delivered on time and promises to clients are not broken.
5. Concerning the SB-30 rice huller, make sure to write down how much rice is processed daily or per hour and keep track of other **data** such as the number of hours the machine runs on each day and who ran the machine (in order to consult the registered data in case of a breakage). Try to get a hold of other **cost-related data** as well such as the transportation costs, in order to estimate the profits of the usage of the rice huller even better.

[2] The experience of UERWL proved that there is a difference in hulling between different types of rice. The type FKR19 breaks easily when hulled without parboiling first, so it is important to keep in mind that these cannot be processed by the huller immediately. Type TS2 can be hulled without parboiling without breaking.

UERWL

1. Problem statement and research question

The *Union des Etuveuses de Riz Wendwaoga de Louda* (UERWL – or *Union of Rice Steamers from Louda*), currently named *Société Coopérative Simplifiée Wendwaoga des Etuveuses de riz de Louda* (SCOOPS/WERL), was created in September 2014. It is a paddy rice processing cooperative, bringing together 4 groups of 120 women for the parboiling of rice. The mission of the cooperative is to improve the incomes, the social and economic conditions of the rice steamers for a sustainable development of the organisation. The union was set up on demand of the rice steamers to concentrate their actions for the promotion of locally produced parboiled rice (SCOOPS/WERL, 2019).

The cooperative has a parboiling centre equipped with solar systems and a water tower for parboiling activities, covering a total area of 994m_2. This centre also includes two warehouses, one of 200 tons for the paddy rice (raw materials) and one of 100 tons for the parboiled/hulled rice (finished products). The main activities of the organisation are:

- Providing paddy rice for the steamers;
- Parboiling: women organise themselves to parboil rice in the centre in groups of 10; they receive a sum of 1,000 FCFA/bag of parboiled paddy rice. The more bags of paddy rice they parboil, the more they earn;
- Marketing of the parboiled rice (and white rice on demand), including quality control;
- Capacity building for members and staff.

The problem stated by the cooperative described is that they have difficulty controlling their periodic parboiling capacity (weekly, monthly, quarterly). Consequently, production costs and profit margins are not properly understood. In 2019, the cooperative signed contracts and delivered large quantities of rice to buyers, but an internal audit revealed that the cooperative managed the markets at a loss. This brings us to the management research question: “How can the periodic parboiling capacity be managed to make the cooperation profitable?”

2. External background analysis

For the external background analysis needed for this research project, there is referred to the investigation of the external environment of UPPRS (see *Rice market in Burkina Faso* and *Stakeholders in the rice sector in Burkina Faso*).

3. Research Methodology

3.1 Problem formulation & Limitations

The identification of the real problems inside the UERWL's organisation was a challenge and therefore required several moments of contact with the organisation in Burkina Faso. In a first Skype meeting, we met in short with Rasmané OUEDRAOGO (UERWL representative) whereafter there was decided that written communication between the project team in Belgium and the cooperative in Burkina Faso would be the most optimal way to acquire information. In this regard, primary information was acquired through multiple questionnaires that were translated from English to French and eventually back to English. Although the chances of translation mistakes were larger, a substantial amount of needed information was acquired regarding the exact challenges that UERWL is facing. However, as at first the identification of the scope of this project pointed out that a periodic parboiling capacity scheme had to be invented, later on it became clear that also profit margins, production costs and therefore the general working and rentability of the cooperative was questioned.

Due to the increased identification of multiple core challenges that the organisation is facing, a second Skype meeting was arranged to verify in more detail what exactly the scope of this business plan should be. During this call, it became clear that the organisation is indeed facing several core challenges that are mostly connected with each other and need an effective approach to deal with. As not only a business plan regarding the capacity of the parboiling centre was needed, also insights in the market and the general profitability were mentioned as unknown. Next to this, a communication and marketing strategy in order to gain a bigger market share was expected to be delivered, as well as a production and a financial planning. This meeting changed the scope of the project rather towards helping the organisation becoming profitable than establishing an accurate parboiling capacity scheme. As the problems are all interrelated, it is in an indirect way that the planning of the parboiling capacity also will be solved in the long term.

Nonetheless, it should be mentioned that due to aggravating circumstances such as Covid-19 and the absence of French-speaking team members, the gathering of information was limited compared to the ideal scenario of being present physically in Burkina Faso. The recommendations proposed in the following sections are therefore limited by creativity as the feasibility of these solutions was prioritized in the context of a country in development.

3.2 Identification of the question hierarchy

As mentioned, the problems that the cooperative faces are not one-sided. Multiple problem statements have thus been derived from the Skype meetings with Trias and UERWL's representatives. It is also based on these statements that recommendations will be given on how to tackle specific problems inside the different branches of the organisation. The main challenges are:

1. A thorough understanding of the rice market in Burkina Faso (and the region of Sanmatenga): what is the market size? What are the market shares of competitors? How is the competitive landscape constituted? What key success factors drive the rice market in Burkina Faso?
2. How to achieve a larger market share in the region: What is the appropriate marketing and communication strategy for this?
3. Awareness around the financial profitability of the organisation: Even though large contracts were signed; no profits were signalled? What exactly are the operational costs? Where in the parboiling process are the profit margins achieved?
4. An operational plan to establish optimal use of the available capacity: When should people work and how long? How much rice should be processed and how regularly?
5. The financial process during the production of parboiled rice; How could we solve the fact that for every order funding needs to be found to buy the raw materials? How could the organisation be financially distressed by this burden? What is the link with the previous challenge, i.e. the operational plan?

3.3 Research Design & Data Collection

As the scope of the project was extended and the working from abroad offered fewer opportunities to gather data more accurately, rather descriptive conceptual plans were created. In these plans, there is emphasized what data would ideally be needed towards the future so that more practical schemes and action plans can come forth out of this. There is thus focused on what kind of information needs to be acquired in order to be more functional as an organisation and to steer towards profitability. For each problem identified above, there is worked out conceptually what is needed and what should be done when the needed intel is acquired. The information is gathered from primary data in the form of questionnaires sent to the contact person of the cooperative, Rasmané OUEDRAOGO, and the reports from the company (Ouedraogo, 2020 ; SCOOPS/WERL, 2019 ; UNERIZ, 2017). Next to this, business knowledge gathered from the courses Operational Management, Strategic & Financial Management Accounting, Corporate Finance and Marketing Management is used to form the recommendations.

Regarding the establishment of a good understanding of the market, a market research is recommended to be conducted. It is hard to consult databases dealing with the rice market in Burkina Faso (and ideally in specific regions) as they barely exist. Therefore, a survey with the right questions is advised to be distributed among connections such as customers and fellow producers (cfr Appendix D: Market Research Survey for UERWL). Together with Porter's forces model (Porter, 2008), this gives a solid basis to build further on while keeping into account the environmental and competitive factors.

With regard to the capturing of a bigger market share, there should be emphasized that this solution will partly be dependent on the insights learned from the market research. However, as we proposed some conceptual and practical solutions for the marketing case of UGPOS, the most important and relevant aspects will be rephrased and applied to the UERWL organisation.

Regarding financial profitability, a conceptual framework is established in which costs are allocated to cost pools (Stouthuysen, 2020). A good follow-up of this theoretical cost system will lead to new insights into the production costs and profit margins. This will then eventually lead to a better understanding of the profitability of the organisation in general.

About the operational plan that will be advised, there is emphasized that the single most important element to constitute a good plan is the keeping track of the monthly sales. Without these numbers and estimations of demands, forecasting and planning the operational capacity is nearly impossible (Vereecke, 2020). Next to this, practical examples and cautious recommendations regarding the inventory management are attached.

Regarding the endless loop of having to find funding for every incoming order, the theoretical concept of the *net working capital* is used to explain different alternatives that can resolve this loop (Luypaert,2020). With the implementation of one of these solutions, complexity in serving the needed quantities to customers can be reduced significantly.

4. Results & Discussion

Problem 1: Understanding the market

Understanding the market is crucial to provide UERWL with solutions to the problems it is facing. Unfortunately, a proper data-based analysis of the rice market is impossible to pursue remotely as the internet lacks reliable and recent data regarding the market. An analysis of the rice market in Burkina Faso by The Bill and Melinda Foundation contains interesting data (Bill and Melinda Gates Foundation, 2012), but as the document was published in 2012 in a fast-growing market, the data is outdated. Therefore, specific data about the market is not used in this chapter. As a

result, this chapter focuses on the fundamentals of the supply chain and factors influencing the market.

Note that the literature study of UPPRS discusses "*Rice market in Burkina Faso"*, it contains information on the market size of rice production and the consumption of rice. This data is also interesting for UERWL.

Porters Forces – UERWL is an *actor* in the supply chain of the rice-producing and processing industry in Burkina Faso. To understand the position of the organisation in the supply chain and in the market in general, it is important to have a better view of the upstream and downstream chain from the organisation and the competition it is facing. Competition for profits goes beyond established industry rivals, it includes four other actors that Michael Porter described as forces, namely the customers, the suppliers, potential entrants and substitute products (Porter, 2008). These forces all influence the position and profit margins of UERWL.

- **Threats of new entrants and substitutes** – A key element to define the position of the organisation in the market is the easiness for new entrants to enter the market and the availability of substitute products or services. Mainly, every single person can start parboiling and rice drying at their home, without heavy investments. However, those small 'home" businesses can only be done on a very small scale and it will be hard for these people to combine the job with the commercial part coming with it and to have any negotiation power with the suppliers or buyers. To scale up, more infrastructure is needed, such as storage capacity, places to dry and huller machines (UNERIZ, 2017). That will require investments and will make it hard for entrepreneurs to enter the market. It is thus from this improved infrastructure that UERWL possesses (compared to single individuals) that the benefits must be reaped.

  Existing organisations can however expand their activities. For example, UPPRS, the organisation that unifies rice producers, recently bought a huller machine and enables it to husk rice themselves. They could also quite easily expand to other rice processing activities.

- **Bargaining power of suppliers** - Powerful suppliers can squeeze profitability out of an industry by charging harder prices. This is the case if the industry is unable to pass on cost increases in its own prices. What follows is an analysis of the bargaining power of suppliers of UERWL.

The suppliers for the organisation are farmers who produce rice. Originally, the production is very fragmented with almost no commercial producers. There were, and still are, a lot of small farmer families producing each a very limited amount of rice (Bill and Melinda Gates Foundation, 2012). Recently however, most of these small farmers in Sanmatenga started to cooperate and organised themselves in bigger cooperations, such as UPPRS (Douamba, 2020). This cooperation enforces the bargaining power of the rice producing farmers, which are the suppliers of UERWL. Our interviews show that UPPRS is the main supplier of paddy rice for the organisation, giving them a lot of power. Although there are also factors limiting this power. UPPRS offers quality rice, but the rice product is not that differentiated from other potential suppliers, as there are others that produce (quality) paddy rice. Switching costs to move to other suppliers are rather low and bargaining with competition of UPPRS is possible. However, buying from individual rice producers will come with a cost, as it will require negotiation with a lot of farmers to order a large amount of rice. In addition, it is important for UERWL to only buy rice of high quality which is guaranteed for UPPRS rice.

To conclude, the bargaining power of the suppliers, UPPRS in specific, is rather low. However, it is important for the organisation to work more closely with UPPRS and maintain a good business relation with them as the preferred business partner. A stronger collaboration upstream in the supply chain with UPPRS can be an opportunity for both parties.

- **Bargaining power of buyers –** Michael Porter describes the power of buyer as follows: *Powerful customers can capture more value by forcing down prices, demanding better quality or more services and thereby driving up costs, at the expenses of the industry profitability. Buyers are powerful if they have negotiating leverage relative to industry participants, especially if they are price sensitive (Porter, 2008).*

  There are limited organisations selling rice in the region. However, the important customers of UERWL are bigger intermediaries who buy larger amounts of rice and have therefore bargaining power, as the organisation do need these large purchases. Thus, there are demand-side benefits of scale. Individual local buyers on the other hand are very price sensitive and do have the alternative of buying imported rice with lower quality but very cheap in comparison with the rice sold by UERWL (Bill and Melinda Gates Foundation, 2012). As a conclusion, the larger buyers will usually have significant bargaining power.

- **Competition:**

  Rivalry among existing competitors – As the rice production is seasonal, switching costs to go to a competitor are low and as it is hard to differentiate the rice sold by the organisation and the rice sold by competitors, competition can be expected to be fierce. The competitors can be divided in two categories. The first category of competition is on a local level. This are cooperatives whose main activity is the parboiling of rice. There are 10 similar cooperatives in the province of Sanmatenga and around fifty in total in Burkina Faso. The second category of competition comes from imported rice.

  Rivalry imported rice – Rice consumption in Burkina Faso is partly satisfied by the imported rice. The retail price for local rice in 2012 was 16% higher than imported rice and still is more expensive, so imported rice is strong competition. In addition, imported rice is old and dry, which increases the volume during boiling. That decreases the competitiveness of local rice on a price/kg cooked basis (Bill and Melinda Gates Foundation, 2012). But in comparison with imported rice, UERWL can clearly differentiate in the quality of the rice.

  Rivalry local rice - The conducted interviews show that UERWL has some strong assets to win against local and national competitors. The organisation is registered, decently organised and has the infrastructure to operate and to parboil rice. This in contrast to the competitors who lack legal existence and proper infrastructure. UERWL can also rely on a technical staff, financial partners (ex. Trias) and a strong network of customers and suppliers. That network also improves the bargaining position in the supply chain, against both suppliers and customers. In addition, the organisation provides high quality without impurities, which is not the case for the rice of the competitors.

Above, we discussed the actors or forces playing a role in positioning the organisation in the supply chain and in the rice industry. Next to these actors, there are also some other **factors** that influence the industry in general and all actors in the industry.

The industry, in general, is facing a lack of financial resources. Almost all actors in the supply chain, from producing farmers to processors, are not able to invest in infrastructure. Also, they lack working capital or cash to pay the required supplies (Bill and Melinda Gates Foundation, 2012). Organisations such as UERWL and UPPRS do have the advantage of receiving financial support from Trias. As technology and innovation are limited in Burkina Faso's agriculture, being able to invest in innovation will easily give you a competitive advantage.

There are other issues playing a role. The government tries to attract foreign and private investor through tax incentives which are often unclear. On the other hand, in 2019, The agricultural sector had to deal with terrorism. In 2020, the Covid-19 pandemic resulted in higher transport costs and storing harvest became more expensive. These events or crises have a big impact on the industry.

Data gathering – Above, an overview was given on main actors and factors playing a role in the rice industry. Nevertheless, the overview was more conceptual. To obtain a thorough understanding of the competition and the customers of the organisation, further research is necessary that cannot be done remotely. Mapping existing and potential customers can be done by means of sending out questionnaires to customers to find out what customers need when looking for rice. An incentive should be given so they will fill in the survey. Information on competition can also be obtained by interviewing customers. Mapping competition, including information on who, what and where they serve, will make it easier for UERWL to distinct itself from the competition. A possible survey to use in order to map the competitive landscape is attached in Appendix D.

Problem 2: Increase market share

For the future growth of UERWL, the organisation should try to increase its market share in the region. The market is not saturated so there are opportunities. It is key to develop a realistic and implementable marketing and communication strategy to achieve a larger share.

Positioning - In the previous chapter, a comparison has been made between UERWL and its national and international competitors. It showed that UERWL has the advantage of being a decently organised cooperative with a strong network of suppliers and customers, but above all that it can clearly differentiate its rice products from the rice of competitors when it comes to quality. On the other hand, it cannot compete in price with the imported rice that is offered at a low price on the market in Burkina Faso. Competing with imported rice on price makes no sense and will just destroy the profit margins. Therefore, the organisation should position itself as bringing better quality rice to the market and providing a better service to the customers.

Service - A personalized service adds to the quality perception of the brand UERWL. Before and after-sales service can be implemented through different channels (email / social media / phone / etc.). Before a purchase, customers should be able to express specific desires, order quantities or process tasks. If there is an urgent order, the organisation should do his best to do an effort to deliver faster. Availability is also part of it, so more storage capacity will lead to a better availability of rice outside the harvest season. After sales service is mostly based on the feedback

given by the customer. Act swiftly to complains of customers to improve their customer experience. Feedback is also key to improve customer retention, ensuring recurring customers, and to improve customer experience in the future.

Latent demand - A market research conducted in 2012 indicates that there is a latent demand for more expensive quality rice (Bill and Melinda Gates Foundation, 2012). There is a willingness of consumers to buy this type of rice, but they lack the purchasing power to pay for it. This latent demand can be enforced and hold by persuasive advertising which seeks to influence consumers tastes and preferences (Market Business News, 2020). Key takeaway from this study is that the consumer cares about the quality. He does not always buy the cheapest rice per se, but he is willing to pay more if he can afford it. Since 2012, the financial ability of consumers did not decrease.

Marketing objectives – As a result of the latent demand, one of the major objectives of marketing is to either influence the potential buyer to allocate his or her available money differently (in favour of the marketeer's product) or to create purchasing power through means such as deferred billing.

Influencing buyers - Influencing the potential buyer to spend more money on quality rice can be done by a campaign promoting the importance of quality. The sellers on local fairs should be able to show potential buyers the difference. Make them able to show the clean rice of UERWL in comparison with the impurities in rice of competitors or the older, dryer imported rice. A possibility for the consumer to taste the rice can help them finding the desire to buy tasty quality rice.

Creating purchasing power – Creating more purchasing power of consumers can improve sales in the business of selling more expensive quality rice. As mentioned, using deferred billing, the consumer has more room to buy larger amounts. However, in a market where consumers are financially unreliable, or if consumers are rather small and non-recurring, deferred billing is discouraged. It will also have a negative impact on the available cash of the organisation. Nevertheless, using deferred billings is possible in favour of consumers with whom the organisation has a good relationship. If UERWL has a strong bargaining position against their suppliers and is able to enforce deferred billings on their part, the organisation will need less cash and can also use deferred billings. In all other cases, it is advisable to focus the marketing more on influencing buyers.

Customer Relationship Management (CRM) – As mentioned in the paragraph on service, collecting feedback on the delivered products and service provides prime information to improve

the customer experience in the future. Processing this data will also enable the organisation to go the extra mile and act to personalized desires of certain customers when they return for a rebuy.

In the marketing plan of UGPOS (see 4.1.4 *Customer Relationship Management (CRM)*), there is extensive information on how to pursue CRM. UERWL can do it in the same way as UGPOS, by identifying the customers and using reactive and proactive CRM. Also, the paragraph on customer retention is applicable for this organisation.

Operational marketing – There are also other elements of the UGPOS marketing plan that are perfectly implementable for UERWL. The reason is because both agricultural organisations provide premium quality and service in the same region. The strategy therefore is similar. But also the operational marketing plan contains valuable information. In what follows a very short overview, but we recommend you to have a look at the UGPOS marketing plan (4.*2 Operational marketing*).

- **Packaging:** Install a uniform packaging design for all the rice sold by the organisation. Use the logo of the organisation as an eye catcher on the packaging, but also on banners on fairs.
- **Communication:** A customer should know the name of the organisation. The name should be recognisable for everyone looking to buy rice. Therefore, we recommend to hold on to one name and not to change the name of the organisation frequently. Also implement an omni-channel approach to reach customers, by real-life physical contacts and through digital online contacts.
- **Price:** Clear information about the offered price should be put into place. In this way, customers know what they will pay at UERWL. Of course, larger order quantities are subject to negotiation, so there is a kind of bulk discount to incentivize.
- **Place:** The first focus should be the local market, but also international markets (neighbouring countries) should be targeted on a longer term. See the paragraph below for more information on this topic.
- **Service:** Service is key for the customer retention. It is already discussed above. You should make the client feel as a king. Important is to provide an after sales service.

Export – Although there is a potential demand for quality rice in Burkina Faso and the market is not saturated, the market for white rice in Burkina Faso will most likely be small (Bill and Miranda

Gates Foundation, 2012). Therefore, exporting rice internationally should remain an option to consider. In practice, export is challenging and it is hard to sell on a market that you don't know well. Especially during the Covid-19 pandemic, the focus should be more locally. Nevertheless, via intermediaries, exploiting new markets is possible. A business travel to neighbouring countries to build new customer relationships is a first step.

Problem 3: Financial - profitability

Understanding the profitability of an organisation and the profit margins of the different products offered is very important. It has an impact on all levels – strategic, operational and marketing & sales (Stouthuysen, 2020). To be able to investigate these however, a lot of data is required. Ideally, all financial data would be available, as also all information about the sales from the past years. Sales information is not kept currently. Only sales information from the top 10 clients, who have fixed contracts are available (for a total amount of 35 tons annually) and the total annual sales (for 2017, 2018 and 2019 respectively 100 tons, 120 tons and 50 tons). In the next section – Problem 4: Operational plan - maximum use of the available capacity – there will be focused on data gathering within the cooperative, what is available and what is missing in order to get the required results.

The total profitability of a company depends on the total sales and total costs. This is a simple calculation but does not provide any insights on *why* the cooperative is making a profit/loss. The track of the customer satisfaction will indicate which are the strengths of the cooperative and what can be worked on to improve in the future.

calculation is done based on the provided excel *"Suivi des operations de la caisse sur les fonds propres de UERWL, de Février à Decembre 2019"* and can be found in the Excel attached to this report named *ABC worksheet ; Tab Sales Information.* All incoming and outgoing entries are summed, excluding the entries which are transfers to the other account of UERWL ("virement à la caisse"). When calculating the yearly balance, we found out that the total costs over the year are almost double of the total income (with a balance of -10,173,210 FCFA). This is quite disturbing but is causing more doubt in the accounting information than to the actual operations of the cooperative.

When all sales of the year are summed up, a total income of 8,457,145 FCFA for the parboiled rice and 106,300 FCFA for services (hulling of the rice) are determined. When we back-calculate

the approximate volume sold, based on the prices of both parboiled and hulled rice[3] (respectively 400 FCFA/kg and 500 FCFA/kg), a total sold volume of approximately 21 tons of parboiled and 213 kg of hulled rice is found[4]. These numbers are very contradicting to the information received through questionnaires, stating that in 2019 a total of 50 tons was sold. Looking at the numbers, a reasonable explanation could be that not all sales were recorded in the accounting excel. If the reported sales are approximately half of the actual sales, then the total incoming value should also be doubled in order to compare it to the total costs.

Due to these contradictions, it is very hard to understand the profitability of the organisation and to investigate where the problem is located for the past year. Therefore, we shift our focus and will design a new Excel sheet, which can be used as a tool for the cooperative. This tool will allow the company to not only keep track of the incoming and outgoing cash flows, but also to keep track of all the needed sales information and include an automatic calculation of the annual profit of the cooperative and the profit margins of each of the products offered.

The product profit margins will be calculated by comparing the selling prices to the production costs. The cost per product is determined with an Activity Based Costing-system (ABC). This is an integrated cost system designed to drive profitability and performance (Atkinson et al., 2012: Kaplan et al., 2017). It is a way of allocating indirect costs in the organisation to a cost object, in this case the different products (i.e. different types of processes: parboiling and hulling). The main reason to set up this new system of allocating costs, is to give more insight in the production costs of each of the products. The main focus of the cooperation is on parboiled rice, but it has been said that for the women parboiling the rice, it is more profitable to do it at home than to do it in the equipped centre. This is not a logical consideration, as bringing together the purchase of paddy and the operations itself should be able to create more value than all separately (or at least the same). To create more insights, two cost objects are identified: parboiled rice (Type FKR 19) and hulled rice (type TS 2) and the production costs related to both are determined. As a prediction, type TS2 should be cheaper as it only has to be hulled, while type FKR 19 undergoes several stages to complete the parboiling, and is afterwards also hulled before being sold.

[3] The cooperative focuses mainly on parboiled rice, but on demand they also sell hulled rice.The parboiled rice is from the type FKR 19, which breaks if it is hulled without being parboiled. Type TS2 can be hulled immediately without breaking and has thus a higher price.

[4] For quantities larger than 25 kg, there is a difference in selling price. Even if those discounted prices are used for the back-calculation (meaning 8,500 FCFA / 25 kg for FKR19 parboiled and 10,000 FCFA / 25 kg for TS2 hulled rice), a total sold volume of 25 tons and 266 kg is found, which is still less than half of the reported sales in 2019.

First of all, the direct costs are reported separately, as they can be directly assigned to the products. Direct costs include the raw material (paddy) supply and the direct labour costs for the women parboiling the rice. The labour cost for the operators of the huller is not a direct cost, as they are given a monthly wage and not money per quantity of rice processed. Remarkably, the paddy price of the two different types is the same (or at least no difference in purchase price is mentioned or documented). We would expect however for the purchase price of type TS 2 to be higher, as this type has a higher selling price and a less intense process to undergo.

The indirect costs are identified based on the excel sheet "*Suivi des operations de la caisse sur les fonds propres de UERWL, de Février à Decembre 2019".* Indirect expenses include the costs of operating machines, scheduling, quality control, purchasing, maintenance and all administrative or general support (including utilities, insurance,…). The indirect expenses are common costs, supporting the production of all products and thus not easily traceable to individual products in the way that direct materials and direct labour costs are. The ABC system provides a framework to link the resource expenses to the products produced, taking into account the complexity of the process for those specific products. A list of all indirect costs is made, including how much the organisation is spending on all of them, and they are divided into different *cost pools*. These cost pools are assigned activity cost drivers that link the activity costs to the organisations' products, see Table 6 Cost pools ABC system. In the newly designed Excel tool, with each indirect cost entered within the *Suivi operations caisse*, the appropriate cost pool has to be allocated and the costs will be directly linked to the corresponding products.

Four different cost drivers are selected to distribute the total indirect costs over the different products. Cost pool 1 includes all general costs, evenly distributed over the products according to the total volume of paddy rice processed. Pool 2 and 3 include the costs respectively linked to the huller and the costs linked to parboiling. Cost pool 2 is allocated based on the machine hours of the huller. For this it will be important that all working hours of the huller are kept and documented. No significant difference has been reported so far between the costs of hulling the two different types of rice (FKR 19 and TS 2). If a difference in for example capacity or use costs would be noticed, this should be taken into account too. Cost pool 3 is allocated according to the labour days of parboiling (normally 3 days for 2 tons). For the moment, these are costs that can be directly allocated to the FKR 19 parboiled type that is being sold, but if in the future multiple types of parboiled rice will be sold it is important to distinguish this in a separate pool. As last, cost pool 4 includes the cost linked to different sales. As type TS 2 is for the moment only sold on demand, this could be a good way to check if it remains profitable when this type would be sold on a more regular basis. Relatively high costs per sale would indicate that it is better to only sell in big batches (even if the price per unit is higher in that case).

Table 6 Cost pools ABC system

Pool	**1 - General costs (for all products)**	**2 - Costs linked to huller**	3 **- Costs linked to parboiling**	**4 - Costs linked to sales**
Cost driver (allocation base)	Volume paddy processed (all types), kg	Huller machine hours (hours)	Women parboiling labour (days)	Number of batches sold
Cost activities belonging to pool	– Restoration of centre – Administrative costs – Material buying (big and small) (If you can link it directly to huller or to parboiling → put in pool 2 or 3) – IUTS / TPA – Maintenance and repair (GENERAL – not of huller or specific materials linked to one product) – Other restorations (training, meeting) – Other transportation (fairs,..) – Trainings – Family donations – Taking care of guests or participants – Electricity (utilities) – Salary of administrative staff & managers – Purchase of packaging – MOD magasin / Gardien M. KiraKOA / …	– Fuel (diesel) for huller – "MOD" hulling – Materials for the huller – Repairs for the huller	– MOD parboiling – Wood purchasing (combustible for parboiling)	– Commission on sales – Transportation / sale (delivery of orders)

The Excel file *ABC empty worksheet* holds everything needed to calculate the profitability of the cooperative and the profit margins of the two main products: parboiled rice type FKR 19 and hulled rice type TS 2. The first sheet *Suivi operations caisse* includes the same system as was used in the past to record all incoming and outgoing cash flows. The only addition is that for every outgoing entry, which is not a direct cost (purchase of paddy or direct labour of the women parboiling, or a transfer to another account), the cost pool much be chosen (based on Table 6 Cost pools ABC system). As example, the excel sheet *ABC worksheet ; Tab – ABC system Dec example* contains an example of one month. Choosing the correct pool from the drop-down list in the Excel *ABC empty worksheet* will ensure that the costs are allocated to the right cost pool in the tab *ABC system*. In this tab, nothing has to be entered by the cooperative, all calculations are set to go. In the tab *Sales,* the cooperative has to enter all sales for the year.

After one year keeping track of all sales, the total cost per product should be available. Because of the abovementioned reasons (unreliable numbers and lack of sales data), it is not useful to calculate this for the previous year. The sales of the upcoming year should be collected in order to improve the operations and reduce the operational costs where needed. If for example there is determined that cost pool 3, costs located to the huller are very high[5], it can be considered to work closer together with UPPRS for the hulling of the rice. They recently purchased a new huller, which is using significantly less fuel and has a higher daily capacity. It can also be used to focus more on the most profitable products. More customers for these products can be targeted in the search for new customers (see problem 2). The Sales tab also includes a very simplified checking system to have a control mechanism over the after-sales support of the different clients. Keeping track of the customer satisfaction will indicate which are the strengths of the cooperative and what can be worked on to improve in the future.

Problem 4: Operational plan - maximum use of the available capacity

To utilize the available capacity to a maximum, an operational plan has to be made. Ideally, this would include an assessment of the throughput / cycle time, the inventory policy (both for paddy rice and finished product) and reordering point (based on predicted demands). However, as insufficient data has been stored in the past, it is impossible to come up with theoretical measurements on which recommendations can be based. Therefore, in what

[5] This example is chosen because there is a premonition that this will be the case. In the research we did for UPPRS, we investigated the operations of their newly purchased huller, and the total costs for this machine are remarkably lower than the ones here.

follows, there will be a strong focus on which data to keep track of and on how to process this data so that towards the future more certainty regarding demand and the use of capacity can be installed.

First of all, we want to stress that it is very important to keep track of all operations. There are monitoring sheets available, we received a document *"Autres outils de gestion centre d'étuvage"* (cfr. Appendix C: Autres outils de gestion centre d'étuvage (UERWL)), but only an empty version. The monitoring sheets are designed to keep track of all paddy needs (to fulfil the demands from the customers), an overview of the paddy stocks in the storage, overview of the finished products in the storage centre, overview of the parboiling groups and quantities processed and an overview of all clients and their demands. The sheets are there, but these are not used to their full potential. When we asked about the data, the empty document was sent. It is important that all these lists are actually filled in and the information is gathered together (in an excel sheet, not written on paper) so they can be used for the analysis of the organisation. Like this, the financial data can easily be recovered, and an optimal schedule can be made periodically. We understand that these sheets are probably printed and filled in with a pencil on paper, however, it would be recommended to transfer the data from the paper to an excel sheet at the end of each week. In this way, data is kept safe and trends can be spotted when enough data is captured over the months/years.

To make a planning, the most important thing to know is the demand. This can be forecasted or predicted in different ways, but as there is no data available on the past sales, forecasting will be impossible for this research. A first estimation of the sales can however be deducted based on the fixed contracts with some major customers. Looking at the list, there is a monthly demand of at least 1.625 tons. This can be taken as a starting point and serves as the minimal amount of parboiled rice that needs to be produced monthly. Next to that, there is a total of 21.75 tons annually sold over fixed contracts (not monthly), so these can be planned in as well from the moment the delivery due dates are known. These delivery dates can be estimated based on the dates of the previous years. By keeping these kinds of data stored, better estimations can be made and therefore, better forecasts of how much rice should be stored can be anticipated.

Regarding the inventory management in the warehouses, it is recommended to use the FIFO (first in, first out) strategy because the products are perishable. This method means that the rice that first entered the warehouse should also be the first used to be parboiled/husked/prepared to be sold. There are two warehouses available: one of 100 tons for finished products and one of 200 tons for the paddy rice. In 2019, there were a few months

where the cooperative had to buy parboiled rice from their members. In this situation, the sales cannot be making profits because the administrative costs and maintenance costs to the centre are too high. It is fundamental to notify and understand that if the organisation buys parboiled rice from its individual members at normal prices for relatively small quantities and thereafter sells the big order to a client for a reduced negotiated price (because of the big quantity), a loss will be made. We understand that it is the goal of the organisation to bring welfare to the community and to make sure that social profits are provided for the members but buying rice from its individual members and reselling it in bigger quantities at lower prices is a business model that will not deliver profits for the cooperative. As long as it is more profitable for individual farmers to parboil rice themselves and sell their small quantities to the cooperative, where after the cooperative sells the big orders at lowered prices, it is impossible to realize profits on the level of the cooperative.

When there is known that both paddy and parboiled rice do not perish for about 4 months[6] when kept in the warehouses, there should always be (at least) 6.4 tons of parboiled rice present in the warehouse. This can serve for the monthly fixed sales up to 4 months (4 times 1.625 tons/month). Since we work with the FIFO system, the chance that the rice will actually be in the warehouse for 4 months is rather small. This would mean that for 4 months in a row, no other sale would have to be accomplished to use the stored rice as sales. Next to this, if there is always 6.4 tons of finished product available, a lot more smaller-quantity sales can be completed in the meantime without having to host new parboiling sessions, unless considerably more orders come in.

To keep track of the movement of the goods in the warehouse, keeping track using the three tables from the *Autres outils de gestion centre d'étuvage* is the first start. Here it is also very important that the bags in the warehouses are labelled correctly and that they are dated. It is crucial to realize that information and data is key when an operational/capacity plan is needed to be created. The tracking of your sales, the variety, the amount, the client etc. are fundamental to realize in what periods of the year more sales and thus more stored rice should be provided.

However, it is realized that even if the capacity of the centre is very high, this has no value when there are no customers available to sell the big quantities to. Therefore, the centre cannot run on maximum capacity all the time. As the capacity of the parboiling is 2 tons in 3

[6] As a remark, through the questionnaires of UPPRS, there was discovered that both paddy and white rice can be stored up to 2 years when kept in the right conditions. As this is also what we found in the literature, the cooperation can check how to achieve this longer preservation time.

days, the first week of every month one session of 3 days can be planned in for the monthly fixed contracts. In this way, the needed 1.625 tons that are demanded on a monthly basis through the fixed contracts are ensured. Generally speaking, to work on maximum capacity, the most efficient strategy is to first lock in the (new) customers. If the demand is known (or can be forecasted with reasonable accuracy) beforehand, the operational plan can be set up based on the numbers of demand that have been established with clients.

As for the paddy inventory management, a standard safety stock of 2.425 tons should be present at all times in the warehouse. This is the amount that is needed to produce the 1.625 tons of parboiled rice that is sold by fixed contracts on a monthly basis. In the next section, there will be discussed on how to solve the problem of always having to find financing to purchase the paddy rice to then only thereafter start the process of making the product for the client, i.e. the parboiled rice. On another note, the capacity of the paddy warehouse is way too big for the cooperative at this point. Half of the warehouse could actually be rented out as storage to other cooperatives. When a closer collaboration with UPPRS is established, they could store paddy rice or white rice here. It could also be used as an intermediate storage after the rice is parboiled and before it is hulled, when the huller of UPPRS would be used instead of your own.

Problem 5: Financial - funding

For every incoming order, a sequence of tasks has been established by how UERWL will treat the order. Logically, first, there is the determination of the needs of the traders. Thereafter, there is estimated what amount of paddy rice (variety, quality…) will have to be acquired to fulfil this need. However, to acquire this paddy rice and to be able to bear the costs of the rice milling, the fuel, the packaging... negotiations are started with financial institutions to make sure that most importantly, the paddy rice can be acquired. This process of negotiating to receive capital to acquire the paddy rice thus happens for every order. This fundamental problem of an insufficient working capital can cause delays and brings uncertainty and complexity to the daily activities of the organisation. However, there are some ways of solving this problem. In short, by establishing a basis supply of paddy rice and by storing this paddy rice of different (most sold) varieties once, there will always be stored rice to fall back on instead of having to negotiate with financial institutions every time again for every order.

Currently there is the problem that the cooperative is stuck in a loop of finding the right funding for every new incoming order. However, it would be recommended to do a one-time investment to pile up some stock of paddy rice on which you can always fall back. To make this example tangible: imagine you have a stock of 1 ton FKR19 paddy rice and 1 ton TS2

paddy rice by doing a one-time investment of 320,000 FCFA. A first order comes in for 25 kg parboiled FKR19 rice. The cooperative can immediately start producing this order and will be serving its client significantly faster than when there would have still been negotiations to acquire funding to then be able to purchase the needed paddy rice to then start processing. When the order has been fulfilled, the cooperative has incoming revenues of 8,500 FCFA and with this money, the stock of paddy rice can be complemented. This refilling of the stock of paddy rice is recommended to do when a larger amount of stock has to be refilled. This can be done when for example 200 kg of FKR19 paddy rice has been used and sold. For a larger order to refill the stock of paddy rice, lower prices can be negotiated. Regarding the cash flows of this example, there is the substantial first investment to create the stock of paddy rice for 320,000 FCFA. Thereafter, there are some outgoing costs such as fuel, labor and transport. And then, there are the incoming revenues of 8,500 FCFA. With this system of having paddy rice in stock, an improved service can be offered as you will be able to handle your order way faster, and less administrative and complex negations will be needed to be held with the financial institutions.

There are several ways to establish this stock of paddy rice that will delete the problem of having to negotiate for funding for every order. A first solution could be finding funding at sponsoring organisations such as Trias. By doing this one-time investment, the loop of needing to find funding would be broken and a basis stock could be established to then be refilled with the incoming revenues coming from the sales.

A second and third option deal with other players in the value chain and are therefore more risky as you want to maintain a good relationship with them. The second option deals with the accounts receivable and it encompasses that you ask for a prepayment from big clients with large orders. We understand that this option can be hard to apply as it is assumed that most clients don’t want to pay in advance. However, if they could do so, the organisation would have money to buy the paddy rice needed for that order and would therefore not have to negotiate with financial institutions. Although it should be mentioned that this is not a solution to stop the loop of the need to find funding as a prepayment from a client will only solve the funding problem for the order of this client.

A third option that could however break the loop problem of finding funding, is asking for a deferred payment on the purchase of paddy rice. If you could for example arrange that you purchase 1 ton FKR19 paddy rice (to the value of 160 000 FCFA) but you only have to pay for this in 1 month. Then you can use this 1 ton to process and sell for a value of 340 000 FCFA with the assumption of receiving 340 FCFA for a kg. At the end of the month, you repay your

supplier of paddy rice with 160 000 FCFA and you maintain 180 000 FCFA which you can now partly use to buy a stock of paddy rice and partly to pay the individual farmers of the cooperative.

Action plan

1. Take all described actions to fully understand the market. By sending out the **survey**, more insights into the competitive landscape and the success factors can be achieved.
2. Create a **customer value proposition** and a clear marketing plan, including which customers to target (after getting insights from the abovementioned surveys) and how (consult UGPOS report for how to achieve this).
3. **Keep track of ALL financial and operational data**. This cannot be stressed enough, as it is crucial to the determination of profitability and production costs.
4. Gathering all the data is not enough. The data should be kept together (preferably in Excel) and should be regularly analysed. Minimum every year, someone should check all sales, costs, profits and operations in order to identify problems and to tackle issues.
5. A closer **cooperation with UPPRS** is recommended, to negotiate paddy prices, possibly increase working capital (by introducing deferred payments on the paddy purchasing) and possibly increase the reach of the cooperative, using their new huller to increase production

Conclusion

In this Global Social Project, three different objectives were completed. These relate to the management question to create a business plan for each of the cooperatives. The extensive analysis for each organisation resulted in in-depth discussions and ultimately a concluding action plan developed for each cooperative.

Due to the difficult situations regarding Covid-19 and working from a distance, the project was very challenging in different aspects. There are certain limitations to the results, mainly due to the language barriers and the work-from-home set-up. Therefore, the research methods are restricted. However, by combining extensive online research, contact meetings with the cooperative's representatives and the practical knowledge acquired throughout the Vlerick year, tangible results and action plans have been created and are hoped to bring added value to the organisations.

Word of thanks

This report is the tailpiece of our Master studies in International Management and Strategy at Vlerick Business School. Writing this report is a result of hard work, a process where small failures were followed with successes. But it was above all a learning journey. An opportunity to apply what we learned in class. A chance to put theory into practice.

We were not able to succeed in this project without the effort of others. Therefore, we would like to express our deepest gratitude to those we helped us along the way. First of all, our Vlerick Promoter professor Robin Kleer and the responsible persons of Trias, René and Emmanuel. Secondly, we would like to thank Korotimotimi, Nadège and Rasmané, the people from UGPOS, UPPRS and UERWL. We were able to kickstart and complete our project thanks to the information they provided us.

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Appendix A: Customer survey for UGPOS

Which of the following words would you use to describe our products? Select all that apply

Reliable – high quality – good value for money – Tasty - overpriced – fast delivery - …

How would you rate the quality of the parboiled rice?

How would you rate the value for money of the product?

How responsive have we been to your questions or concerns about our products?

How satisfied are you with our speed of delivery ?

How likely is it that you would recommend UGPOS to a friend or collegue ?

How many times have you purchased an order at our cooperative?

This is the first – a few times – more than three, but not regularly – more than three, on a regular basis (monthly/annually)

How likely are you to purchase any of our products again?

Extremely likely – very likely – somewhat likely – not so likely – not at all likely

Do you have any other comments, questions or concerns? / Where can we improve?

Appendix B: List of primary data gathered through the interviews with UPPRS

Purchase price rice huller	3,000,000 FCFA
Estimated lifetime of huller	5 years
Rice huller capacity	10 tons / day
Rice huller capacity	2.4 tons / hour
Average operational hours rice huller	8 hours / day
Part of paddy production volume for own consumption	20%
Desired part of sales volume for processing	50%
Selling price paddy rice	160 FCFA/kg
Selling price white rice	400 FCFA/kg
Husking efficiency	65%
Selling price waste (husks)	1,500 FCFA / 50 kg
Purchase price paddy rice	150 FCFA/kg
Operational months rice huller	6 months / year
Fuel price	580 FCFA / l
Fuel consumption rice huller	15 l / 10 tons
Emptying costs rice huller	2,300 FCFA / month
Required personnel for operation of the huller	2 people
Wages of staff	20,000 FCFA / month / person

Annual anticipateder growth rate of paddy production	10%
Tax rate on white rice	15%
Part of paddy production sold through fixed contracts	60%
Possible storing time (paddy and white rice)	2 years

Appendix C: Autres outils de gestion centre d'étuvage (UERWL)

I) OUTIL DE COLLECTE DES BESOINS EN PADDY DES MEMBRES ET DE L'UNION

Groupement : …….

Date : …….

Nom et Prénom (s)	Variété	Quantité	Prix unitaire	Prix total	Observations

II) OUTIL DE GESTION DES STOCKS DE PADDY / MAGASIN DU CENTRE

Dates	N° Entrée	Quantité entrées	Quantité sorties	Reste	Observations

III) OUTIL DE GESTION DES STOCKS DE PRODUIT FINI/MAGASIN DU CENTRE

Dates	N° Entrée	Quantité entrées	Quantité sorties	Reste	Observations

IV) OUTIL DE GESTION DES GROUPES D'ETUVAGE / MAGASIN DU CENTRE

Dates	Responsable du groupe	Quantité de paddy sortie pour étuver (kg)	Quantité produit fini attendue (kg)	Quantité produit fini obtenue (kg)	Observations

V) REPERTOIRE DES FOURNISSEURS DE L'UNION

N°	Organisation	Nom/Prénom (s) du 1er responsable	Quantité riz paddy livrée (kg)	Variété	Prix du kilo	Prix total	Observations

VI) REPERTOIRE DES CLIENTS DE L'UNION

Nom de la Société : ……..

Nom et Prénom (s) du responsable : …….. Tél. : ……

N°	Dates de livraison	Quantité produit fini commandée (kg)	Valeur	Date de paiement	Observations

Appendix D: Market Research Survey for UERWL

Questionnaire for intermediaries/wholesalers

-- mention that it will also benefit themselves when they fill this survey in as you will share the results with them

How many tons of paddy rice do you estimate to be traded on a yearly basis in Burkina Faso/ Sanmatenga region?

…….. tons

How many tons of white rice do you estimate to be traded on a yearly basis in Burkina Faso/ Sanmatenga region?

…….. tons

How many tons of parboiled rice do you estimate to be traded on a yearly basis in Burkina Faso/ Sanmatenga region?

…….. tons

In which months of the year is your trading volume the biggest? In which months of the year is your trading volume the lowest?

Highest trading volumes in months: ……
Lowest trading volumes in months: ……

How do you determine your price?

How many categories of clients do you have (restaurants, hotels, …)? What are these categories exactly?

How many clients are in each category? (f.ex. I sell to 3 restaurant owners, to 2 hotel owners, …)

Who are your main competitors?

Do you have the feeling that the rice industry in Burkina Faso /Sanmatenga is evolving positively or rather negatively? Why exactly?